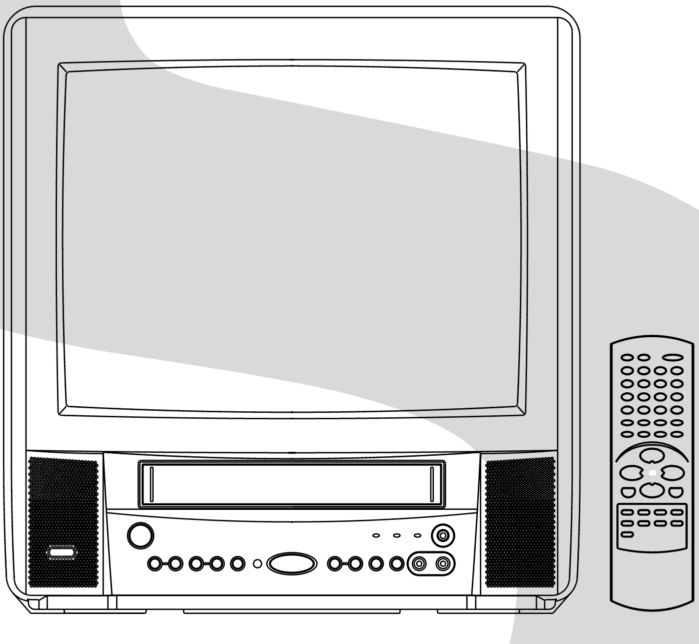
TOSHIBA

FILE NO. 140-200023

SERVICE MANUAL

COLOR TELEVISION/ VIDEO CASSETTE RECORDER

MV13DL2



SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note1]** .
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

GENERAL SPECIFICATIONS

G-1	**TV System**	CRT		CRT Size / Visual Size	13 inch / 335.4mmV
				CRT Type	Normal
				Deflection	90 degree
				Magnetic Field BV/BH	+0.45G / 0.18G
		Color System			NTSC
		Speaker			1Speaker
				Position	Front
				Size	1.5 x 2.5 Inch
				Impedance	8 ohm
		Sound Output		MAX	1.25 W
				10%(Typical)	1.00 W
G-2	**VCR System**	System			VHS Player / Recorder
		Video System			NTSC
		Hi-Fi STEREO			No
		NTSC PB			-
		Deck		DECK	OVD-6S
				Loading System	Front
				Motor	3
		Heads	Video Head		2 Head
			FM Audio Head		No
			Audio /Control		Mono
			Erase(Full Track Erase)		Yes
		Tape Speed	Rec	PAL	-
				NTSC	SP/SLP(EP)
			Play	PAL	-
				NTSC	SP/SLP(EP)
		Fast Forward / Rewind Time (Approx.)		Cassette	FF:1'48"/REW:1'48" at T-120
		Forward/Reverse Picture Search		NTSC or PAL-M	SP/SLP(EP)=3x,5x/9x,15x
		Frame Advance		Slow	-
		Slow Speed		Variable Slow	-
G-3	**Tuning System**	Broadcasting System			US Sysytem M
		Tuner and Receive CH		System	1Tuner
				Destination	USA+CATV
				Tuning System	F-Synth
				Input Impedance	VHF/UHF 75 ohm
				CH Coverage	2~69, 4A,A-5~A-1, A~I, J~W.W+1~W+84
		Intermediate Frequency		Picture(FP)	45.75MHz
				Sound(FS)	41.25MHz
				FP-FS	4.5MHz
		Preset CH			No
		Stereo/Dual TV Sound			No
G-4	**Signal**	Video Signal		Input Level	1 V p-p/75 ohm
				Output Level	1 V p-p/75 ohm
				S/N Ratio (Weighted)	50 dB
				Horizontal Resolution at SP Mode	230Lines
		Audio Signal		Input Level	RCA-8dB/50Kohm
				Output Level	RCA-8dB/ 1Kohm
				S/N Ratio at SP	38 dB
				Harmonic Distortion (1KHz)	1.5 %
				Frequency Response at SP	100Hz ~10kHz
				at LP	-
				at SLP	100Hz ~4kHz
		Hi-Fi Audio Signal		Dynamic Range : More than	-
				Wow And Flutter : Less than	-
				Channel Separation : More than	-
				Harmonic Distortion : Less than	-
G-5	**Power**	Power Source		AC	120V 60Hz
				DC	12V
		Power Consumption		at AC	65 W at 120V 60Hz
				at DC	54 W at 12 V
				Stand by (at AC)	5 W at 120V 60 Hz
				Per Year	-
		Protector		Power Fuse	Yes
				Dew Sensor	Yes
G-6	**Regulation**			Safety	UL
				Radiation	FCC
				X-Radiation	DHHS
G-7	**Temperature**			Operation	+5oC ~ +40oC
				Storage	-20oC ~ +60oC
G-8	**Operating Humidity**				Less then 80% RH

GENERAL SPECIFICATIONS

G-9	**On Screen Display**	Menu			Yes	
			Menu	Type	Character	
			Timer Rec Set		Yes	
			Channel Setup		Yes	
				TV/CATV	Yes	
				Auto ch Memory	Yes	
				Add/Delete	Yes	
				Guide ch Set		No
			TV Setup		Yes	
				V-chip Set	Yes	
				On/Off Timer Set	Yes	
				Picture	Yes	
				Audio		No
				Sap On/Off		No
			Auto Repeat On/Off		Yes	
			On/Off Timer Set			No
			System Setup		Yes	
				Clock Set	Yes	
				Language	Yes	
				Auto Clock On/Off	Yes	
				Standard Time	Yes	
				Daylight Saving Time	Yes	
			Commercial Advance			No
				Marking On/Off		No
				Blueback On/Off		No
				Playback Auto/Manual		No
				Unmarked Tape		No
			Movie Advance			No
				Go To Movie		No
				Go To Preview		No
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry				No
		Clock			Yes	
		CH/AV			Yes	
		Tape Counter(Linear Counter)			Yes	
		Tape Speed			Yes	
		Sleep Time			Yes	
		Stereo/Audio Output				No
				Bilingal		No
				SAP		No
		Control Level	Volume		Yes	
			Bright / Contrast / Sharpness / Color		Yes	
			Tint		Yes	
			Bass/Treble/Balance			No
			Manual Tracking		Yes	
		Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In (Symbol Mark)			Yes	
		Auto Tracking/Manual Tracking			Yes	
		Caption / Text			Yes	
		Index				No
		Muting			Yes	
		Hi-Fi				No
		Repeat			Yes	
		Zero Return				No
		DEW			Yes	
G-10	**OSD Language**				English French Spanish	
			OSD Language Setting		English	
G-11	**Clock,Timer and Timer Back-up**	Calendar			1990/1/1 ~ 2081/12/31	
		Timer Events			8 prog/ 1 month	
		One Touch Recording Max Time			5 Hours	
		OTPB Valid Time			No	
		Sleep Timer		Max Time	120	min.
				Step	10	min.
		On/Off Timer		Program(On Tim / Off Tim)	1	prog.
		Auto Shut Off		No Signal	15	min.
				No Operation	-	
		Timer Back-up (at Power Off Mode)			5	sec.

GENERAL SPECIFICATIONS

G-12	**Remote Control**	Unit		RC-DQ
		Glow in Dark Remocon		Yes
		Format		NEC
		Custom Code		40-BFh , 44-BBh
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		42 Keys
		Keys	Power	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			CH Up	Yes
			CH Down	Yes
			Volume Up	Yes
			Volume Down	Yes
			Input Select	Yes
			Play	Yes
			F.Fwd	Yes
			Rew	Yes
			Pause/Still	Yes
			Stop	Yes
			Rec/OTR	Yes(2Keys)
			Eject	Yes
			Counter Reset	Yes
			Speed	Yes
			Timer Rec	Yes(2Keys)
			TV Monitor	No
			Quick View	Yes
			Program	Yes
			Slow	No
			Auto Tracking	Yes
			Set/Tracking+	Yes
			Set/ Tracking -	Yes
			Menu	Yes
			Enter	Yes
			Cancel	Yes
			Call	Yes
			TV/Caption/Text	Yes
			Sleep Timer	Yes
			Muting	Yes
			Zero Return	Yes
			CM Skip	Yes
			Audio Select	No
G-13	**Features**	Auto Head Cleaning		Yes
		Auto Tracking		Yes
		HQ (VHS Standard High Quality)		Yes
		Auto Power On, Auto Play, Auto Rewind, Auto Eject		Yes
		VIDEO PLUS+(SHOWVIEW,G-CODE)		No
		Auto Clock		Yes
		Forward / Reverse Picture Search		Yes
		One Touch Playback		No
		Auto CH Memory		Yes
		Closed Caption		Yes
		TV Auto Shut off Function		Yes
		End Call		No
		Index Search		No
		SQPB		No
		CATV		Yes
		CM Skip(30sec x 6 Times)		Yes
		Comb Filter		No
		TV Monitor		No
		Program Extend		No
		Choke Coil		No
		Energy Star		Yes
		Dirty Head		No
		V-chip	USA V-chip	Yes
			CANADA V-chip	No
		CM Advance		No
		Movie Advance		No
G-14	**Accessories**	Owner's Manual	Language	English
			w/Guarantee Card	Yes
		Remote Control Unit		Yes
		Rod Antenna		No
			Poles	-
			Terminal	-
			w/300 ohm to 75 ohm Antenna Adapter	-
		Loop Antenna		No
			Terminal	-
		U/V Mixer		No
		DC Car Cord (Center+)		Yes
		Guarantee Card		No
		Warning Sheet		No
		Circuit Diagram		No
		Antenna Change Plug		No
		Service Facility List		No
		Important Safeguard		No
		Dew/AHC Caution Sheet		No
		AC Plug Adapter		No
		Quick Set-up Sheet		No
		Battery		Yes
			UM size x pcs	UM-4 x 2 pcs
		AC Cord		No
		AV Cord (2Pin-1Pin)		No
		Registration Card		Yes
		ESP Card		Yes
		300 ohm to 75 ohm Antenna Adapter		Yes

GENERAL SPECIFICATIONS

G-15	**Interface**	Switch		Power	Yes
				Play	Yes
				Pause/Still	No
				System Select	No
				One Touch Playback	No
				Channel Up	Yes
				Channel Down	Yes
				F.FWD/Cue	Yes
				Eject/Stop	Yes
				Main Power SW	No
				Volume Up	Yes
				Volume Down	Yes
				Rew/Rev	Yes
				Rec/OTR	Yes
				Input Select	Yes
		Indicator		Power	Red
				Rec/OTR	Red
				T-Rec	Red
				On Timer	No
				CS	No
		Key Light up		Rec/OTR	No
				One Touch Playback	No
				Play	No
		Terminals	Front	Video Input	RCAx1
				Audio Input	RCAx1
				Other Terminal	Head Phone(Stereo & Mono, ?3.5)
			Rear	Video Input	RCAx1
				Audio Input	RCAx1
				Video Output	RCAx1
				Audio Output	RCAx1
				Euro Scart	No
				Diversity	No
				Ext Speaker	No
				DC Jack 12V(Center +)	Yes
				VHF/UHF Antenna Input	F Type
				AC Inlet	No
G-16	**Set Size**			Approx. W x D x H (mm)	362 x 369 x 382
G-17	**Weight**			Net (Approx.)	12.0Kg(26.5 lbs)
				Gross (Approx.)	14.0 kg(30.9 lbs)
G-18	**Carton**		Master Carton		No
				Content	-
				Material	-
				Dimensions W x D x H(mm)	-
				Description of Origin	-
			Gift Box		Yes
				Material	Double/White
				Dimensions W x D x H(mm)	423 x 447 x 443
				Design	As per Buyer's
				Description of Origin	Yes
			Drop Test	Natural Dropping At	1 Corner / 3 Edges / 6 Surfaces
				Height (cm)	62
			Container Stuffing(40' container)		700 Sets
G-19	**Cabinet Material**			Cabinet Front	PS 94V0 DECABROM
				Cabinet Rear	PS 94V0 DECABROM
				Jack Panel	PS 94V0 DECABROM

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: BACK CABINET (Refer to Fig. 1-1)

1. Remove the 4 screws ①.
2. Remove the screw ②.
3. Remove the 2 screws ③ which are used for holding the Back Cabinet.
4. Remove the AC cord from the AC cord hook ④.
5. Remove the Back Cabinet in the direction of arrow.

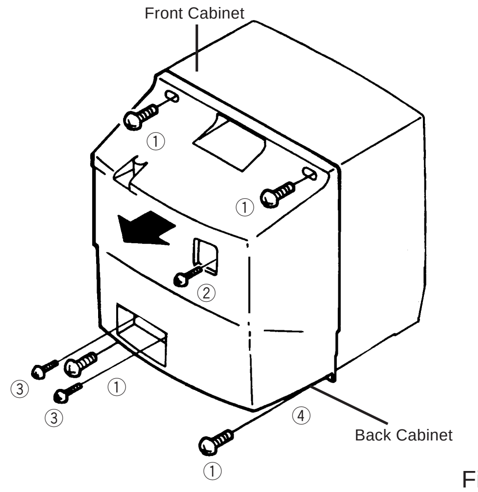

Front Cabinet
①
①
②
③
①
③
④
Back Cabinet
①

Fig. 1-1

1-2: CRT PCB (Refer to Fig. 1-2)

CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap.
   (Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors:
   (CP801 and CP850).
3. Remove the CRT PCB in the direction of arrow.

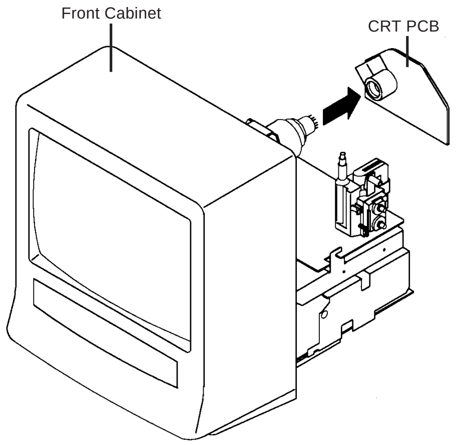

Front Cabinet
CRT PCB

Fig. 1-2

1-3: TV/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:
   (CP351, CP352, CP4202 and CP403).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.

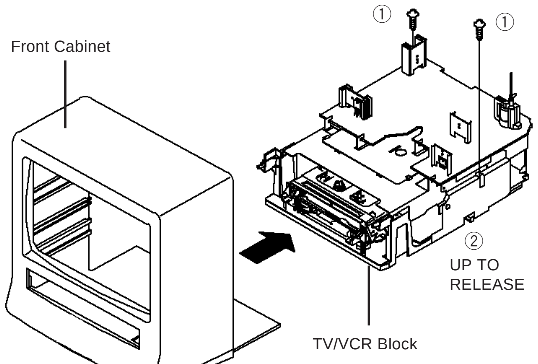

①
①
Front Cabinet
②
UP TO
RELEASE
TV/VCR Block

Fig. 1-3

1-4: MAIN PCB (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the Main PCB Holder.
3. Remove the 2 screws ②.
4. Remove the 3 screws ③.
5. Disconnect the following connectors:
   (CP502, CP820, CP401 and CP402).
6. Remove the Main PCB in the direction of arrow.

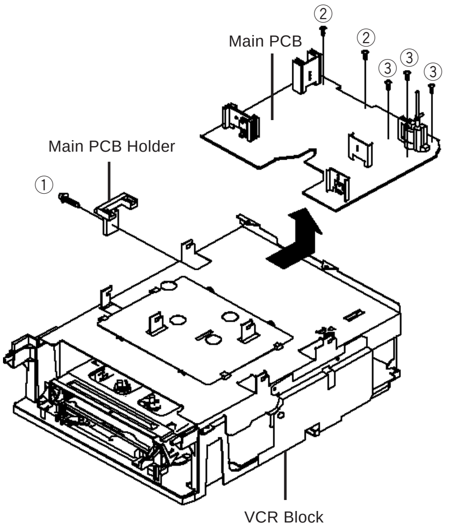

②
Main PCB
②
③
③
③
Main PCB Holder
①
VCR Block

Fig. 1-4

DISASSEMBLY INSTRUCTIONS

1-5: DECK SHIELD PLATE (Refer to Fig. 1-5)

1. Remove the 2 screws ①.
2. Remove the screw ②.
3. Remove the Deck Shield Plate in the direction of arrow.

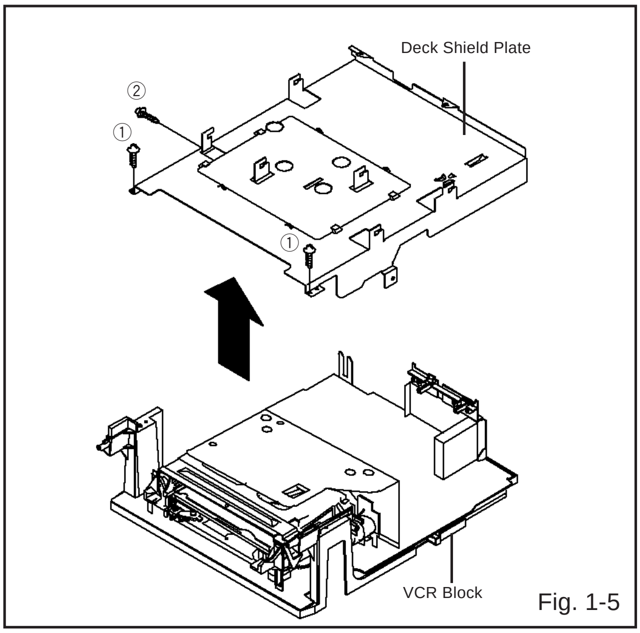

Deck Shield Plate
②
①
①
VCR Block

Fig. 1-5

1-6: DECK CHASSIS (Refer to Fig. 1-6)

1. Remove the 3 screws ①.
2. Remove the 2 screws ②.
3. Disconnect the following connectors: (CP1001, CP1004, CP1005, CP1006, CP4001, CP4002 and CP4003).
4. Remove the Deck Chassis and Deck Shield cover in the direction of arrow.

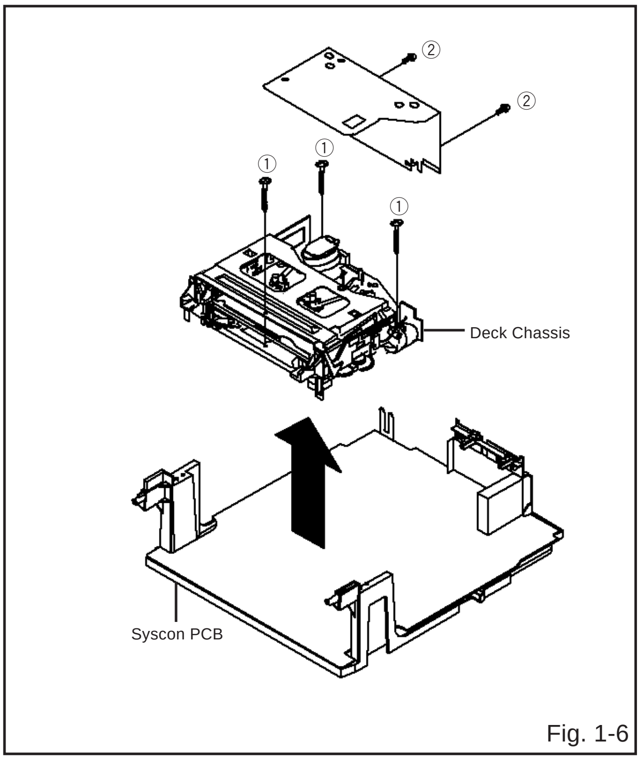

②
②
①
①
①
Deck Chassis
Syscon PCB

Fig. 1-6

1-7: JACK PLATE AND SYSCON PCB (Refer to Fig. 1-7)

1. Remove the screw ①.
2. Remove the Syscon PCB in the direction of arrow (A).
3. Remove the 2 screws ②.
4. Unlock the 2 supports ③.
5. Remove the Jack Plate in the direction of arrow (B).

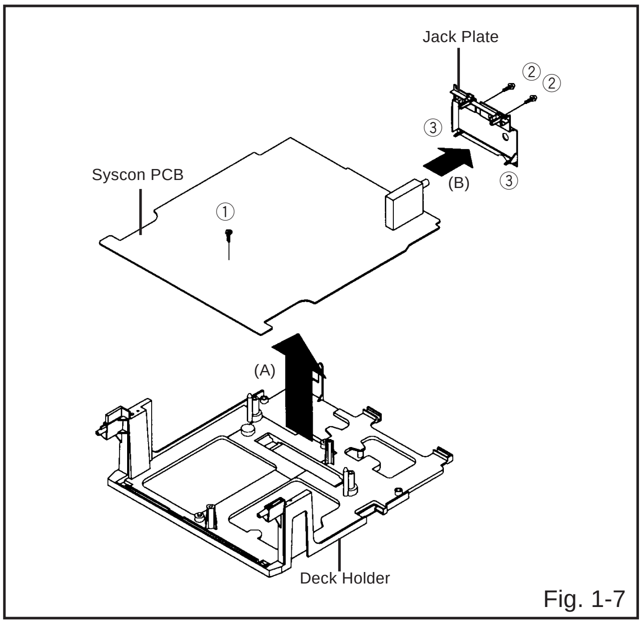

Jack Plate
②
②
③
Syscon PCB
(B)
③
①
(A)
Deck Holder

Fig. 1-7

DISASSEMBLY INSTRUCTIONS

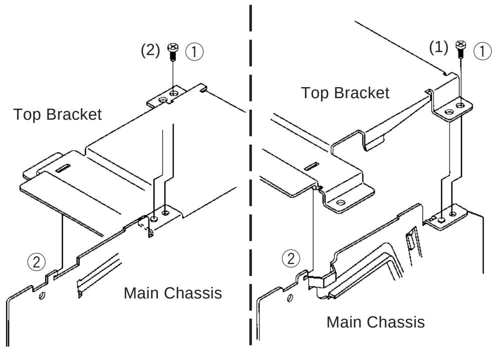
2. REMOVAL OF DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Remove the 2 screws ①.
2. Slide the 2 supports ② and remove the Top Bracket.

NOTE

When you install the Top Bracket, install the screw (1) first, then install the screw (2).


(2) ①
Top Bracket
②
Main Chassis
(1) ①
Top Bracket
②
Main Chassis

• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-1

2-2: FLAP LEVER/TAPE GUIDE R (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the back side.
2. Remove the Polyslider Washer ①.
3. Remove the Flap Lever.
4. Unlock the 3 supports ② and remove the Tape Guide R.

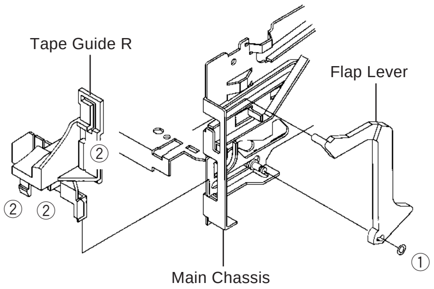
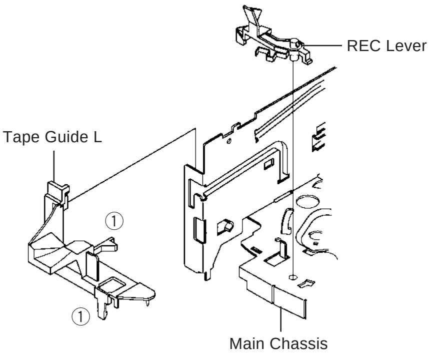

Tape Guide R
Flap Lever
②
② ②
①
Main Chassis

Fig. 2-2

2-3: TAPE GUIDE L (Refer to Fig. 2-3-A)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the 2 supports ① and remove the Tape Guide L.
3. Remove the REC Lever. (Recorder only)

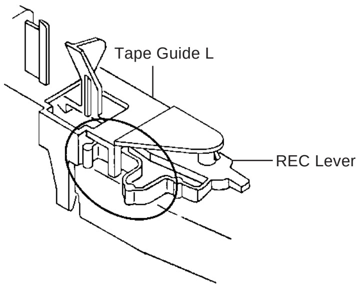

REC Lever
Tape Guide L
①
①
Main Chassis

• The REC Lever is not installed on the Video Cassette Player.

Fig. 2-3-A

NOTE

When you install the Tape Guide L, install as shown in the circle of Fig. 2-3-B. **(Refer to Fig. 2-3-B)**


Tape Guide L
REC Lever

• The REC Lever is not installed on the Video Cassette Player.

Fig. 2-3-B

2-4: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-4)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

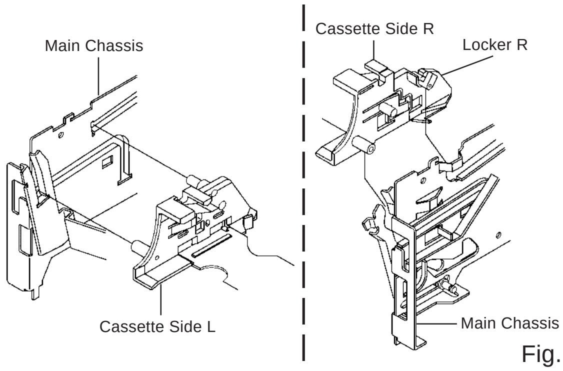

Main Chassis
Cassette Side L
Cassette Side R
Locker R
Main Chassis

Fig. 2-4

2-5: CASSETTE SIDE L/R (Refer to Fig. 2-5)

1. Unlock the 4 supports ① and then remove the Cassette Side L/R.

NOTE

When you install the Cassette Side R, be sure to move the Locker R after installing.

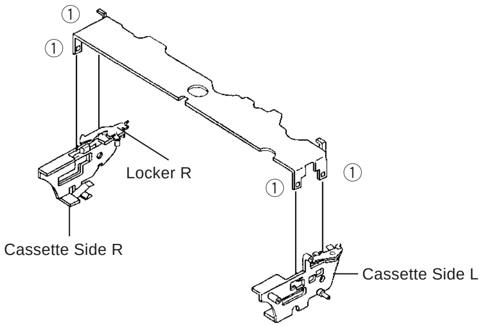

①
①
Locker R
①
①
Cassette Side R
Cassette Side L

Fig. 2-5

DISASSEMBLY INSTRUCTIONS

2-6: LINK ASS'Y (Refer to Fig. 2-6)

1. Set the Link Ass'y to the Eject position.
2. Remove the (A) side of the Link Ass'y first, then remove the (B) side.

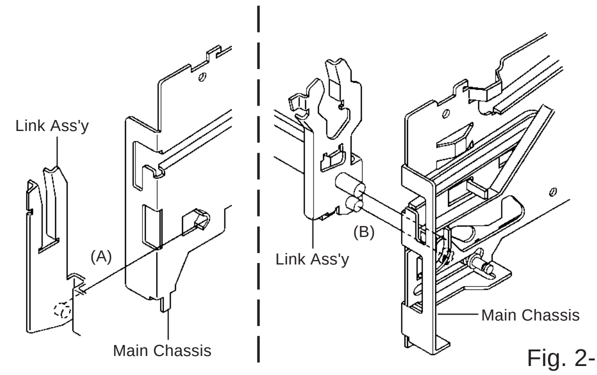
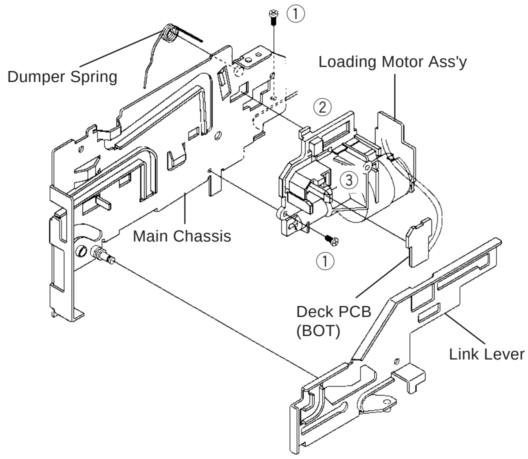

Link Ass'y
(A)
Main Chassis
(B)
Link Ass'y
Main Chassis

Fig. 2-6

2-7: LOADING MOTOR ASS'Y (Refer to Fig. 2-7)

1. Remove the Link Lever.
2. Remove the Dumper Spring.
3. Remove the 2 screws ①.
4. Unlock the support ② and remove the Loading Motor Ass'y.
5. Unlock the 2 supports ③ and remove the Deck PCB (BOT).


①
Dumper Spring
Loading Motor Ass'y
②
③
Main Chassis
①
Deck PCB
(BOT)
Link Lever

• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-7

2-8: SENSOR COVER L3 (Refer to Fig. 2-8)

1. Unlock the support ① and remove the Sensor Cover L3.

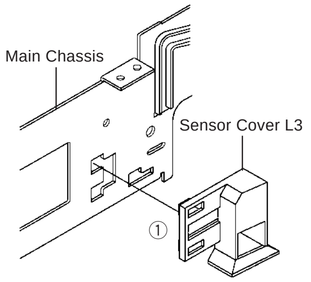

Main Chassis
Sensor Cover L3
①

Fig. 2-8

2-9: TENSION ASS'Y (Refer to Fig. 2-9-A)

1. Move the Inclined S Ass'y to the back side.
2. Remove the Tension Spring.
3. Unlock the support ① and remove the Tension Arm Ass'y.
4. Remove the Tension Adjust.
5. Unlock the 2 supports ② and remove the Tension Band Ass'y.
6. Unlock the support ③ and remove the Tension Holder.
7. Remove the SS Brake Spring.
8. Remove the SS Arm Brake.

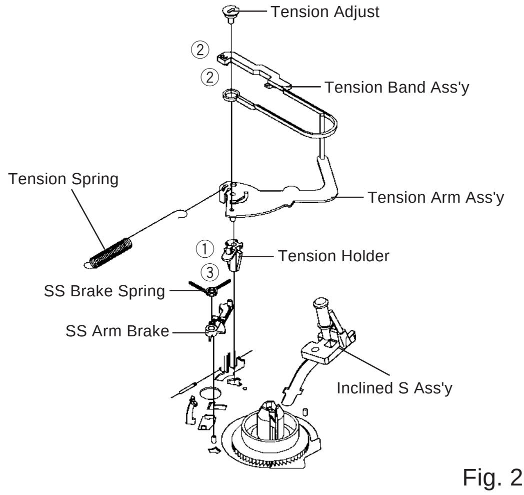

Tension Adjust
②
②
Tension Band Ass'y
Tension Spring
Tension Arm Ass'y
①
Tension Holder
③
SS Brake Spring
SS Arm Brake
Inclined S Ass'y

Fig. 2-9-A

NOTE

When you install the Tension Adjust, install as shown in Fig. 2-9-B. **(Refer to Fig. 2-9-B)**

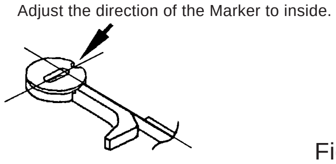

Adjust the direction of the Marker to inside.

Fig. 2-9-B

2-10: T BRAKE ASS'Y (Refer to Fig. 2-10)

1. Remove the T Brake Spring.
2. Remove the T Brake Ass'y.

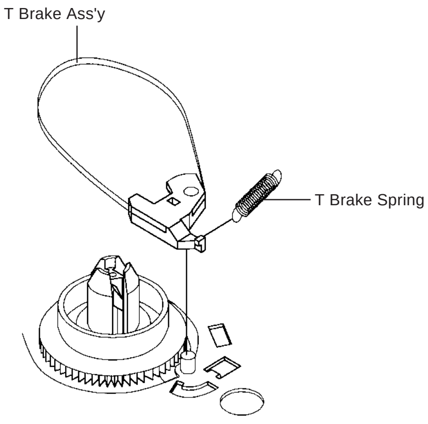

T Brake Ass'y
T Brake Spring

Fig. 2-10

DISASSEMBLY INSTRUCTIONS

2-11: S REEL/T REEL (Refer to Fig. 2-11)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.

NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-11)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and oil it. (If you do not oil, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

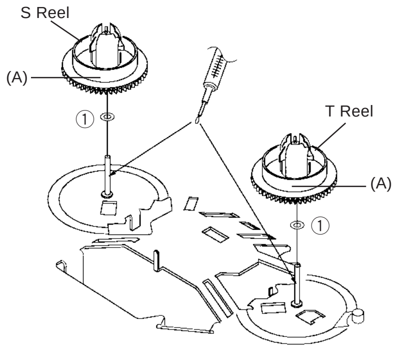
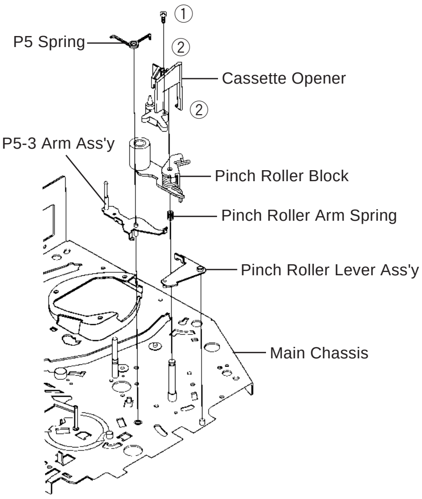

S Reel
(A)
①
T Reel
(A)
①

Fig. 2-11

2-12: PINCH ROLLER BLOCK/P5-3 ARM ASS'Y (Refer to Fig. 2-12-A)

1. Remove the P5 Spring.
2. Remove the screw ①.
3. Unlock the 2 supports ② and remove the Cassette Opener.
4. Remove the Pinch Roller Block, Pinch Roller Arm Spring, Pinch Roller Lever Ass'y and P5-3 Arm Ass'y.


①
P5 Spring
②
Cassette Opener
②
P5-3 Arm Ass'y
Pinch Roller Block
Pinch Roller Arm Spring
Pinch Roller Lever Ass'y
Main Chassis

• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-12-A

NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. When you install the Pinch Roller Block, install as shown in the circle of Fig. 2-12-B. **(Refer to Fig. 2-12-B)**

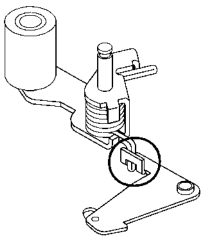


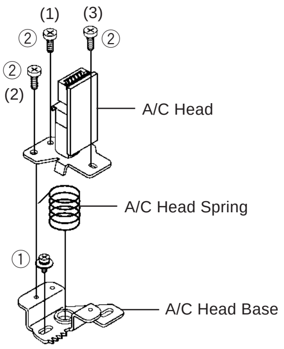
Fig. 2-12-B

2-13: A/C HEAD (Refer to Fig. 2-13-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-13-B. **(Refer to Fig. 2-13-B)**
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).


(1)
(3)
②
②
②
(2)
A/C Head
A/C Head Spring
①
A/C Head Base

• Screw Torque: 4 ± 0.5kgf•cm (Screw ①)

Fig. 2-13-A

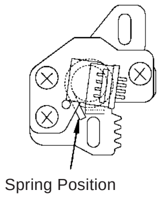
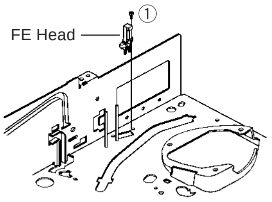

Spring Position

Fig. 2-13-B

2-14: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-14)

1. Remove the screw ①.
2. Remove the FE Head.



• The FE Head is not installed on the Video Cassette Player.
• Screw Torque: 4 ± 0.5kgf•cm

Fig. 2-14

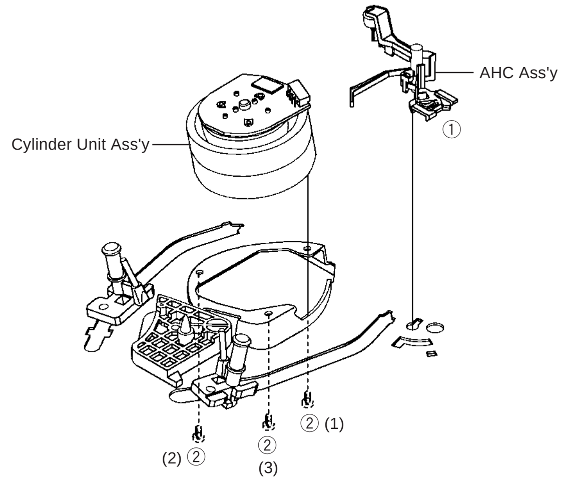
DISASSEMBLY INSTRUCTIONS

2-15: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-15)

1. Unlock the support ① and remove the AHC Ass'y.
2. Remove the 3 screws ②.
3. Remove the Cylinder Unit Ass'y.

NOTE

When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.

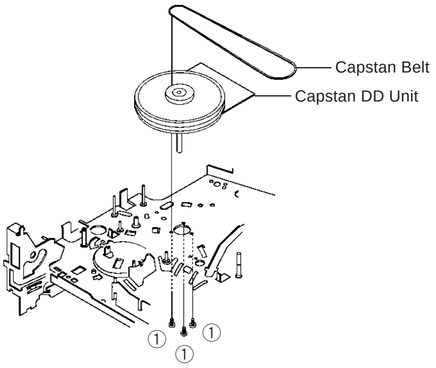

AHC Ass'y
①
Cylinder Unit Ass'y
② (1)
(2) ②
②
(3)

• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-15

2-16: CAPSTAN DD UNIT (Refer to Fig. 2-16)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.


Capstan Belt
Capstan DD Unit
①
①
①

• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-16

2-17: MIDDLE GEAR/MAIN CAM (Refer to Fig. 2-17-A)

1. Remove the Polyslider Washer ①, then remove the Middle Gear.
2. Remove the E-Ring, then remove the Main Cam, P5 Cam and Pinch Roller Cam.
3. Remove the Polyslider Washer ②, then remove the Joint Gear.

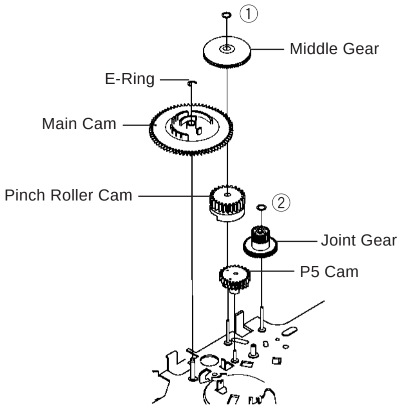

①
Middle Gear
E-Ring
Main Cam
Pinch Roller Cam
②
Joint Gear
P5 Cam

Fig. 2-17-A

NOTE

When you install the Pinch Roller Cam, P5 Cam and Main Cam, align each marker. **(Refer to Fig. 2-17-B)**

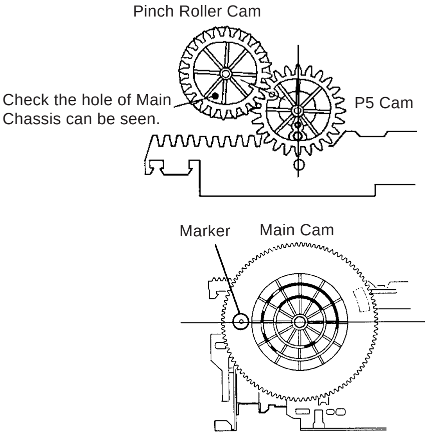

Pinch Roller Cam
Check the hole of Main Chassis can be seen.
P5 Cam
Marker
Main Cam

Fig. 2-17-B

2-18: CLUTCH ASS'Y (Refer to Fig. 2-18)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y, Ring Spring and Coupling Gear.
3. Unlock the 2 supports ② and remove the Clutch Lever.

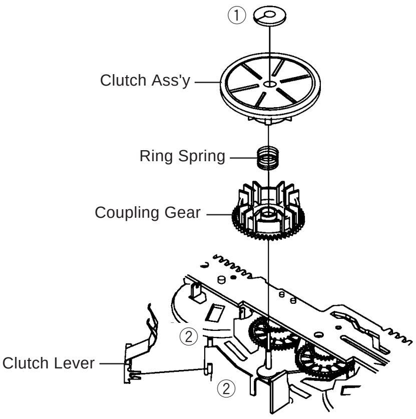
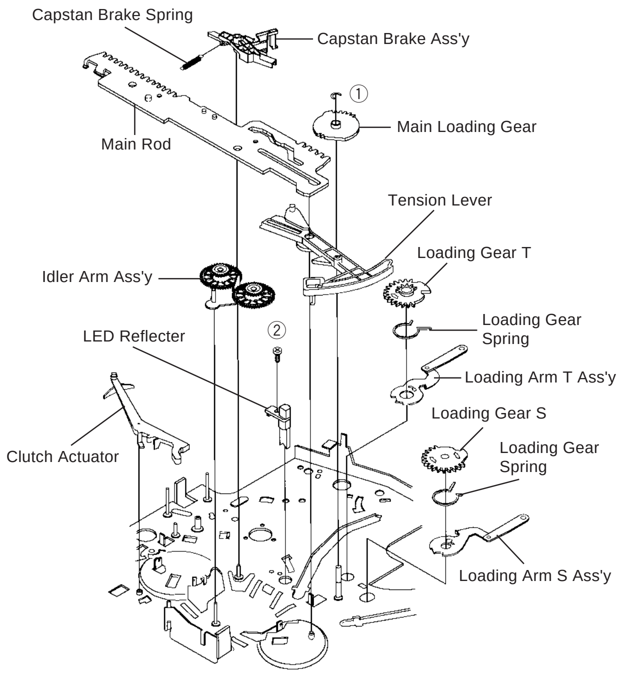

①
Clutch Ass'y
Ring Spring
Coupling Gear
②
Clutch Lever
②

Fig. 2-18

DISASSEMBLY INSTRUCTIONS

2-19: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-19-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Capstan Brake Spring.
3. Slide the Main Rod and remove the Capstan Brake Ass'y.
4. Remove the Main Rod, Tension Lever, Clutch Actuator, Idler Arm Ass'y.
5. Remove the screw ②.
6. Remove the LED Reflecter.
7. Remove the Loading Arm S Ass'y and Loading Arm T Ass'y.
8. Remove the Loading Gear S and Loading Gear T.
9. Remove the Loading Gear Spring.


Capstan Brake Spring
Capstan Brake Ass'y
①
Main Loading Gear
Main Rod
Tension Lever
Loading Gear T
Idler Arm Ass'y
Loading Gear Spring
LED Reflecter
②
Loading Arm T Ass'y
Loading Gear S
Clutch Actuator
Loading Gear Spring
Loading Arm S Ass'y

• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-19-A

NOTES

1. When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker. **(Refer to Fig. 2-19-B)**

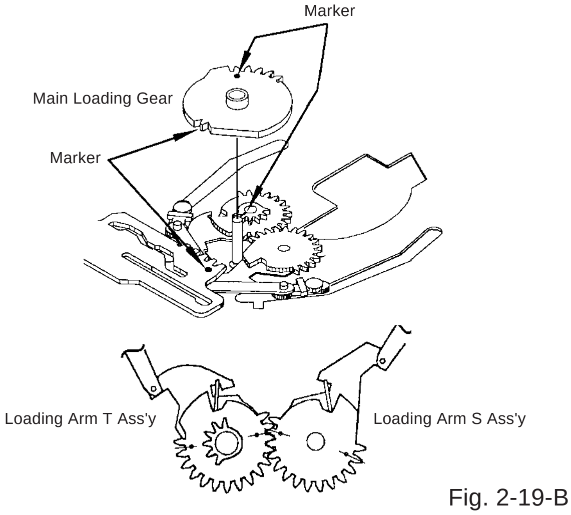

Marker
Main Loading Gear
Marker
Loading Arm T Ass'y
Loading Arm S Ass'y

Fig. 2-19-B

2. When you install the Clutch Actuator, install as shown in the circle of Fig. 2-19-C. **(Refer to Fig. 2-19-C)**

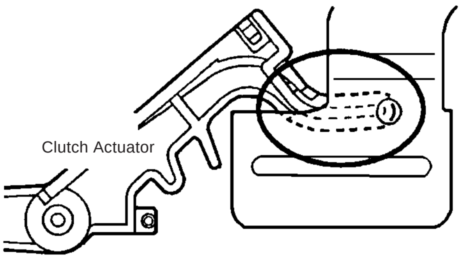

Clutch Actuator

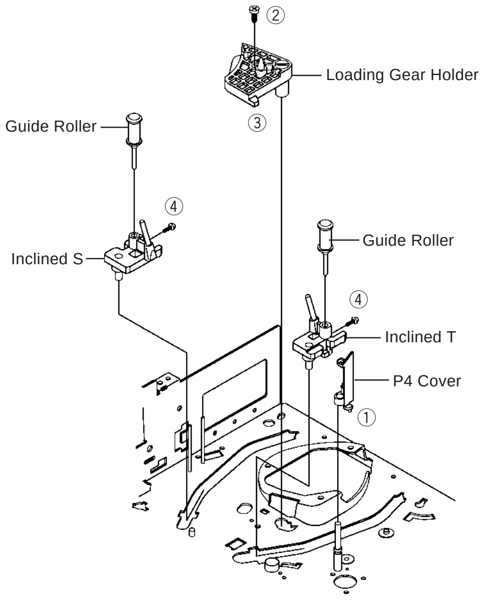
Fig. 2-19-C

2-20: INCLINED S/T ASS'Y (Refer to Fig. 2-20)

1. Unlock the support ① and remove the P4 Cover.
2. Remove the screw ②.
3. Unlock the support ③ and remove the Loading Gear Holder.
4. Remove the Inclined S.
5. Remove the Inclined T.
6. Remove the 2 screws ④, then remove the Guide Roller.

NOTE

Do not touch the roller of Guide Roller.


②
Loading Gear Holder
Guide Roller
③
④
Guide Roller
Inclined S
④
Inclined T
P4 Cover
①

• Screw Torque: 5 ± 0.2kgf•cm (Screw ②)
• Screw Torque: 0.7 ± 0.2kgf•cm (Screw ④)

Fig. 2-20

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

- After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
- Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 3-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

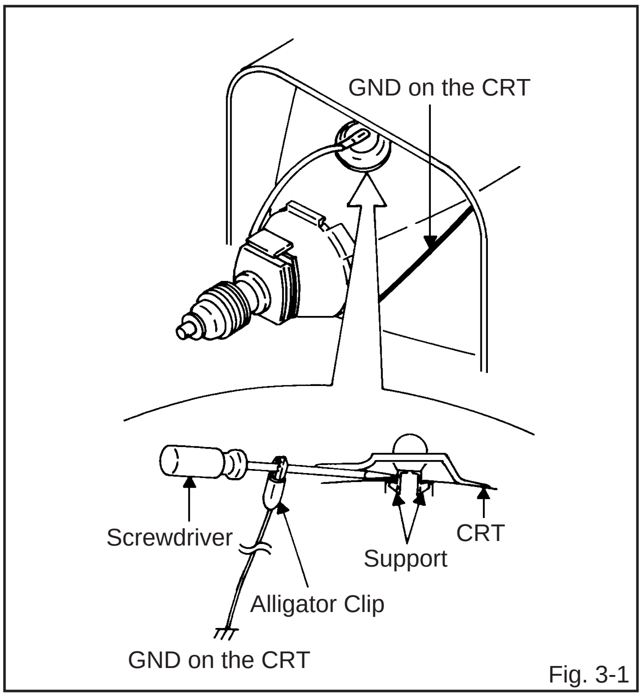


Fig. 3-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 3-2.)**

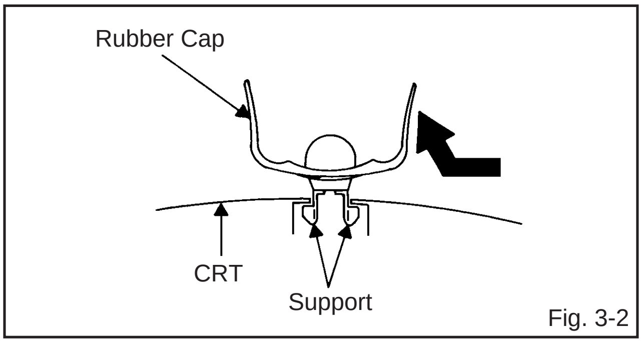


Fig. 3-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 3-3.)**

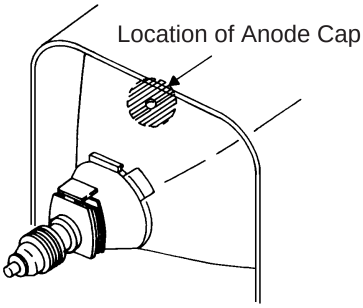


Fig. 3-3

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 3-4.)**

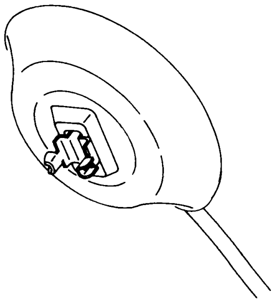


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 3-5**.

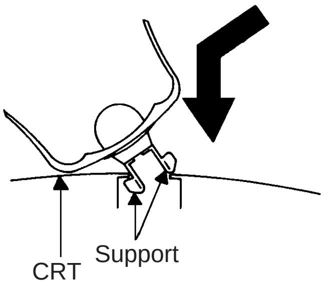


Fig. 3-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

KEY TO ABBREVIATIONS

A	**A/C**	:	Audio/Control
	ACC	:	Automatic Color Control
	AE	:	Audio Erase
	AFC	:	Automatic Frequency Control
	AFT	:	Automatic Fine Tuning
	AFT DET	:	Automatic Fine Tuning Detect
	AGC	:	Automatic Gain Control
	AMP	:	Amplifier
	ANT	:	Antenna
	A.PB	:	Audio Playback
	APC	:	Automatic Phase Control
	ASS'Y	:	Assembly
	AT	:	All Time
	AUTO	:	Automatic
	A/V	:	Audio/Video
B	**BGP**	:	Burst Gate Pulse
	BOT	:	Beginning of Tape
	BPF	:	Bandpass Filter
	BRAKE SOL	:	Brake Solenoid
	BUFF	:	Buffer
	B/W	:	Black and White
C	**C**	:	Capacitance, Collector
	CASE	:	Cassette
	CAP	:	Capstan
	CARR	:	Carrier
	CH	:	Channel
	CLK	:	Clock
	CLOCK (SY-SE)	:	Clock (Syscon to Servo)
	COMB	:	Combination, Comb Filter
	CONV	:	Converter
	CPM	:	Capstan Motor
	CTL	:	Control
	CYL	:	Cylinder
	CYL-M	:	Cylinder-Motor
	CYL SENS	:	Cylinder-Sensor
D	**DATA (SY-CE)**	:	Data (Syscon to Servo)
	dB	:	Decibel
	DC	:	Direct Current
	DD Unit	:	Direct Drive Motor Unit
	DEMOD	:	Demodulator
	DET	:	Detector
	DEV	:	Deviation
E	**E**	:	Emitter
	EF	:	Emitter Follower
	EMPH	:	Emphasis
	ENC	:	Encoder
	ENV	:	Envelope
	EOT	:	End of Tape
	EQ	:	Equalizer
	EXT	:	External
F	**F**	:	Fuse
	FBC	:	Feed Back Clamp
	FE	:	Full Erase
	FF	:	Fast Forward, Flipflop
	FG	:	Frequency Generator
	FL SW	:	Front Loading Switch
	FM	:	Frequency Modulation
	FSC	:	Frequency Sub Carrier
	FWD	:	Forward
G	**GEN**	:	Generator
	GND	:	Ground
H	**H.P.F**	:	High Pass Filter
	H.SW	:	Head Switch
	Hz	:	Hertz
I	**IC**	:	Integrated Circuit
	IF	:	Intermediate Frequency
	IND	:	Indicator
	INV	:	Inverter
K	**KIL**	:	Killer
L	**L**	:	Left
	LED	:	Light Emitting Diode
	LIMIT AMP	:	Limiter Amplifier
	LM, LDM	:	Loading Motor
	LP	:	Long Play
	L.P.F	:	Low Pass Filter
	LUMI.	:	Luminance
M	**M**	:	Motor
	MAX	:	Maximum
	MINI	:	Minimum
	MIX	:	Mixer, mixing
	MM	:	Monostable Multivibrator
	MOD	:	Modulator, Modulation
	MPX	:	Multiplexer, Multiplex
	MS SW	:	Mecha State Switch
N	**NC**	:	Non Connection
	NR	:	Noise Reduction
O	**OSC**	:	Oscillator
	OPE	:	Operation
P	**PB**	:	Playback
	PB CTL	:	Playback Control
	PB-C	:	Playback-Chrominance
	PB-Y	:	Playback-Luminance
	PCB	:	Printed Circuit Board
	P. CON	:	Power Control
	PD	:	Phase Detector
	PG	:	Pulse Generator
	P-P	:	Peak-to Peak
R	**R**	:	Right
	REC	:	Recording
	REC-C	:	Recording-Chrominance
	REC-Y	:	Recording-Luminance
	REEL BRK	:	Reel Brake
	REEL S	:	Reel Sensor
	REF	:	Reference
	REG	:	Regulated, Regulator
	REW	:	Rewind
	REV, RVS	:	Reverse
	RF	:	Radio Frequency
	RMC	:	Remote Control
	RY	:	Relay
S	**S. CLK**	:	Serial Clock
	S. COM	:	Sensor Common
	S. DATA	:	Serial Data
	SEG	:	Segment
	SEL	:	Select, Selector
	SENS	:	Sensor
	SER	:	Search Mode
	SI	:	Serial Input
	SIF	:	Sound Intermediate Frequency
	SO	:	Serial Output
	SOL	:	Solenoid
	SP	:	Standard Play
	STB	:	Serial Strobe
	SW	:	Switch

KEY TO ABBREVIATIONS

S **SYNC** : Synchronization
SYNC SEP : Sync Separator, Separation
T **TR** : Transistor
TRAC : Tracking
TRICK PB : Trick Playback
TP : Test Point
U **UNREG** : Unregulated
V **V** : Volt
VCO : Voltage Controlled Oscillator
VIF : Video Intermediate Frequency
VP : Vertical Pulse, Voltage Display
V.PB : Video Playback
VR : Variable Resistor
V.REC : Video Recording
VSF : Visual Search Fast Forward
VSR : Visual Search Rewind
VSS : Voltage Super Source
V-SYNC : Vertical-Synchronization
VT : Voltage Tuning
X **X'TAL** : Crystal
Y **Y/C** : Luminance/Chrominance

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter SERVICE MODE, unplug AC cord till lost actual clock time. Then press and hold Vol (-) button of main unit and remocon key simultaneously.

The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	2	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VOL. (-) MIN	3	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more than 2 seconds during PLAY.
VOL. (-) MIN	6	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF USING HOURS). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "NOTE FOR THE REPLACING OF MEMORY IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

Method	Operations
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING"

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Time Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	■	■	
Capstan Belt			■	■	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	■	■	■	■ ●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■	■	■	●	Clean the Head

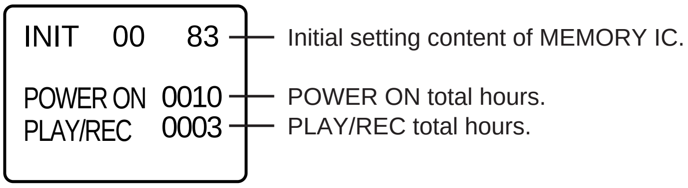
■ : Clean
● : Replace

CONFIRMATION OF USING HOURS

POWER ON total hours and PLAY/REC total hours can be checked on the screen.
Total hours are displayed in 16 system of notation.

NOTE: The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

1. Set the VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously.
3. After the confirmation of using hours, turn off the power.



```
INIT    00    83

POWER ON  0010
PLAY/REC  0003
```

(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

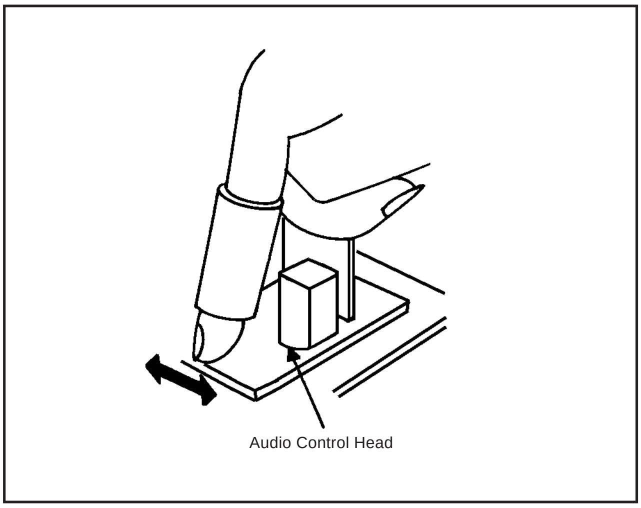
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol and clean the audio control head by wiping it horizontally. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

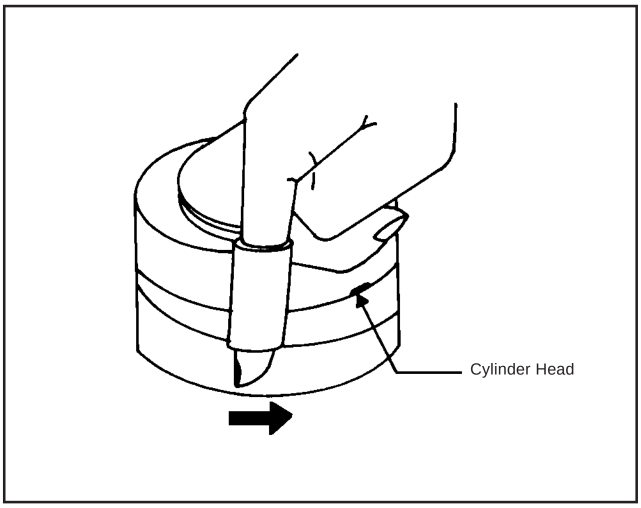
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head.
Use the chamois one by one.



NOTE FOR THE REPLACING OF MEMORY IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE: Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	88	0A	8C	43	42	23	36	4B	51	12	10	9C	00	00	00	11
10	8C	68	5C	53	00	00	30	05	05	00	A9	05	05	39	8D	00
20	00	00	00	00	00	00	00	00	00	00	---	---	---	---	---	---

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously. ADDRESS and DATA should appear as FIG 1.

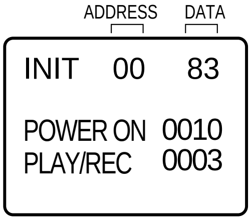
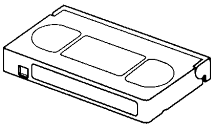
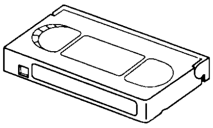
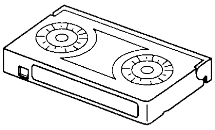
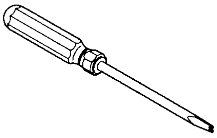
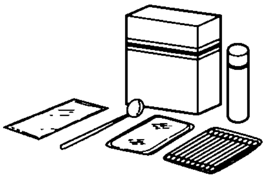
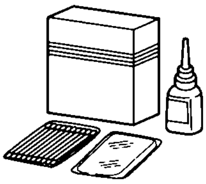
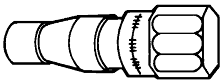
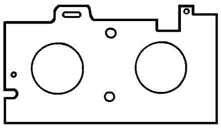
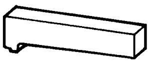
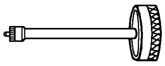
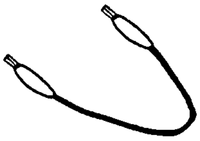
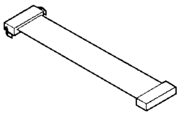
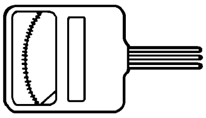


Fig. 1

3. ADDRESS is now selected and should "blink". Using the SET + or - button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using SET + or - button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

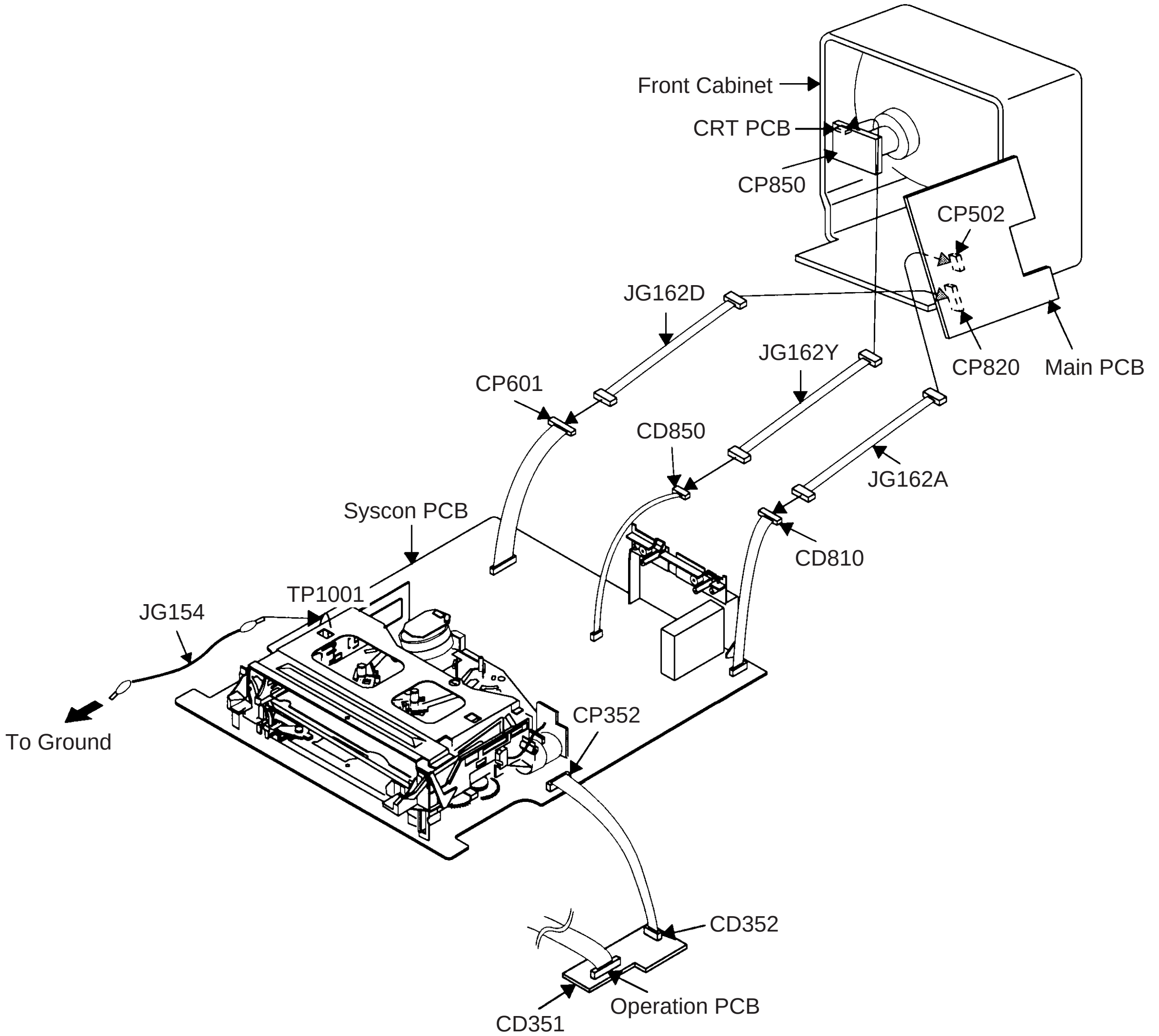
Alignment Tape  ST-N5 ST-NF	Back tension cassette gauge  70909103	Torque cassette gauge (KT-300NR)  70909199	Taper nut driver  70909228
VTR cleaning kit 	VTR lubrication kit 	Grease 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 
JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG153 X Value Adjustment Screwdriver 	JG154 Cable 
JG162A Cable (8 Pins) JG162D Cable (11 Pins) JG162Y Cable (5 Pins) 	Tentelometer 		

Ref. No.	Part No.	Remarks
JG002B	APJG002B00	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	VSR Torque, Brake Torque (S Reel)
JG153	APJG153000	X Value Adjustment
JG022/JG024A	APJG022000/APJG024A00	Reel Disk Height Adjustment
JG154	APJG154000	Used to connect the test point of SERVICE and GROUND
JG162A/JG162D	APJG162A00/APJG162D00	Used to connect the Syscon PCB and Main PCB
JG162Y	APJG162Y00	Used to connect the Syscon PCB and CRT PCB

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. Unplug the connector CP402, CP352, CP4202, CP502, CP820 and CP850, then remove the VCR Block from the set.
2. Connect as shown in the below figure using the Service Fixture.
   - Connect the Syscon PCB to the Main PCB with the cable JG162A and JG162D.
   - Connect the Syscon PCB to the CRT PCB with the cable JG162Y.
3. Remove the Operation PCB from the set, then connect it with the Syscon PCB.
   If necessary, connect CD351.
4. Short circuit between **TP1001** and **Ground** with the cable JG154.
   (Refer to MAJOR COMPONENTS LOCATION GUIDE)
5. The EOT, BOT and Reel Sensor do not work at this moment.
   At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.


Front Cabinet
CRT PCB
CP850
CP502
JG162D
JG162Y
CP820
Main PCB
CP601
CD850
JG162A
Syscon PCB
CD810
TP1001
JG154
To Ground
CP352
CD352
Operation PCB
CD351

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Cassette Holder, short circuit between **TP1001** and **GND**. **(Refer to ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE)** In this condition the BOT/EOT/Reel Sensor will not function.

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane **(JG022)** and reel disk height adjustment jig **(JG024A)** on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. Confirm that "A" of the reel disk is lower than "B" of the reel disk height adjustment jig **(JG024A)**, and is higher than "C". If it is not enough height, adjust to 10(+0.2, -0) mm with the height adjustment washer.
4. Adjust the other reel in the same way.

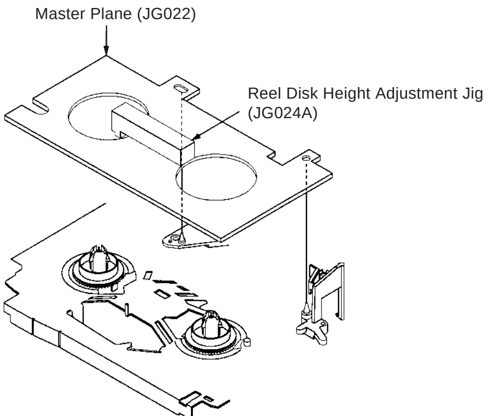

Master Plane (JG022)
Reel Disk Height Adjustment Jig (JG024A)

Fig. 1-1-A

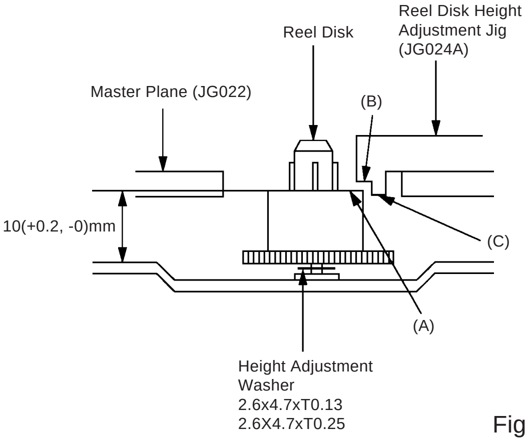

Reel Disk
Reel Disk Height Adjustment Jig (JG024A)
Master Plane (JG022)
(B)
10(+0.2, -0)mm
(C)
(A)
Height Adjustment Washer
2.6x4.7xT0.13
2.6X4.7xT0.25

Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the Tension Adjust until the edge of the Tension Arm is positioning within 0.5mm range from the standard line center of Main Chassis.
   After this adjustment, confirm that the cut position is located in "A" area as shown in **Fig. 1-2-B**. If it is located in "B" area, adjust again.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

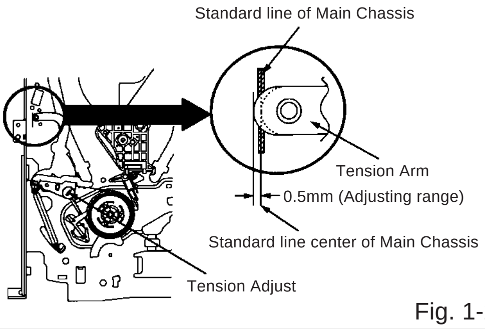

Standard line of Main Chassis
Tension Arm
0.5mm (Adjusting range)
Standard line center of Main Chassis
Tension Adjust

Fig. 1-2-A

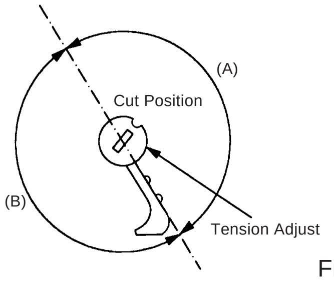

(A)
Cut Position
(B)
Tension Adjust

Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (T-120) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2gf in the beginning of playback.

- USING A CASSETTE TYPE TORQUE TAPE **(KT-300NR)**

1. After confirmation and adjustment of Tension Post position **(Refer to item 1-2)**, load the cassette type torque tape **(KT-300NR)** and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 60~110gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

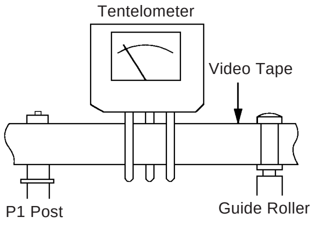

Tentelometer
Video Tape
P1 Post
Guide Roller

Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Operate within 4~5 seconds after the reel disk begins to turn.
2. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Set to the Rewind mode. **(Refer to Fig.1-4)**
3. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) **(Refer to Fig. 1-4)**

1. Set to the STOP mode.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Turn the Torque Gauge **(JG002F)** clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) **(Refer to Fig. 1-4)**

1. Set to the STOP mode.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge **(JG002E)** and Adapter **(JG002B)** on the T reel. Turn the Torque Gauge **(JG002E)** counterclockwise.
4. Then, confirm that it indicates 45~70gf•cm.

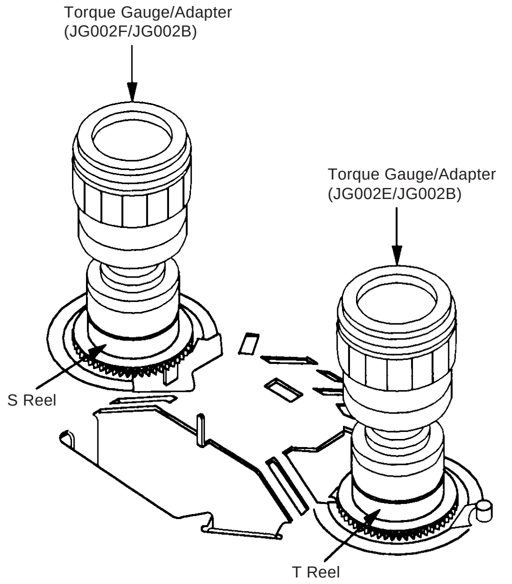


Fig. 1-4

NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	T Brake Spring/Tension Spring

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape.
2. Connect CH-1 of the oscilloscope to **TP4001 (Envelope)** and CH-2 to **TP1002 (SW Pulse)**.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. **(Refer to Fig. 2-1-A)**
5. When observing the envelope, adjust the Taper Nut Driver slightly until the envelope will be flat.
   Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback.
   (Refer to the ELECTRICAL ADJUSTMENTS)

NOTE

After adjustment, confirm and adjust A/C head.
(Refer to item 2-2)

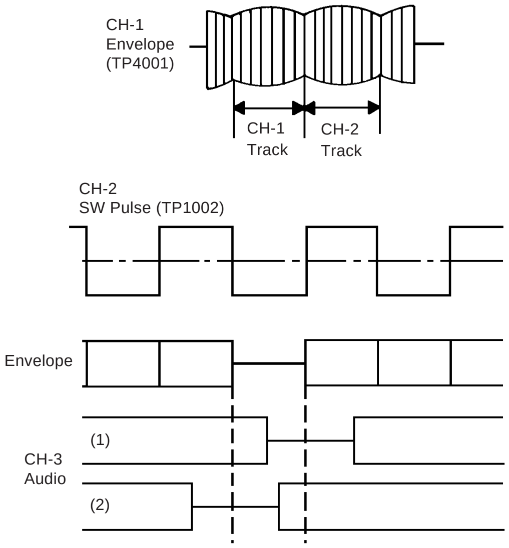


Fig. 2-1-A

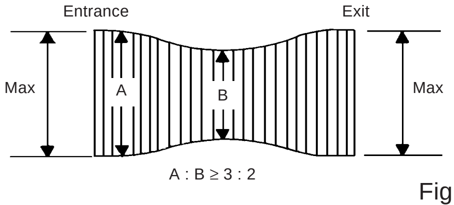


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/ CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape.
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
   a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
   b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
   c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

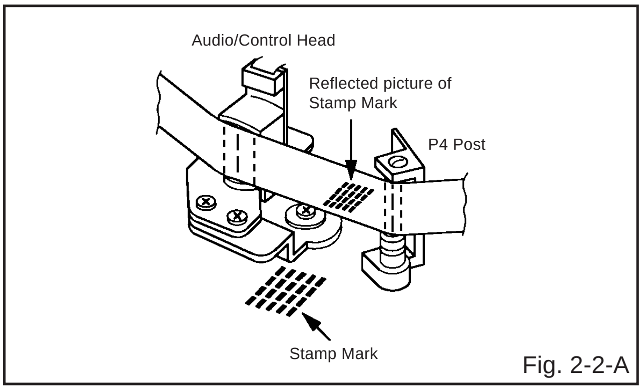


Fig. 2-2-A

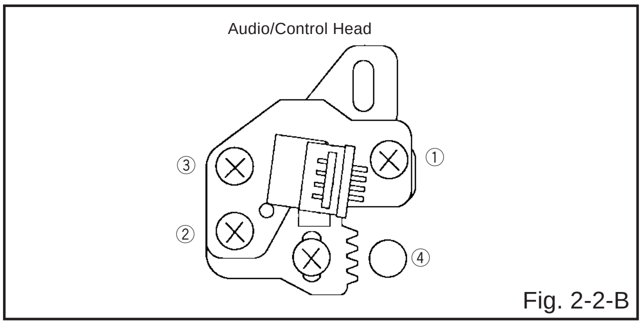


Fig. 2-2-B

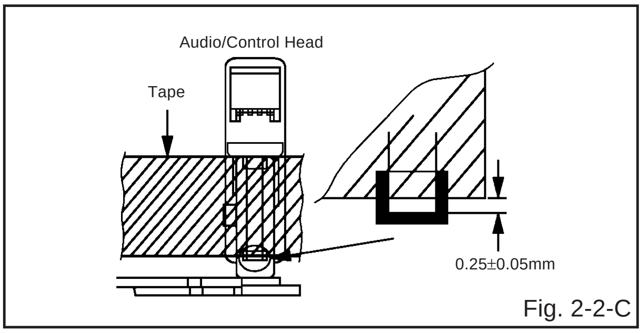


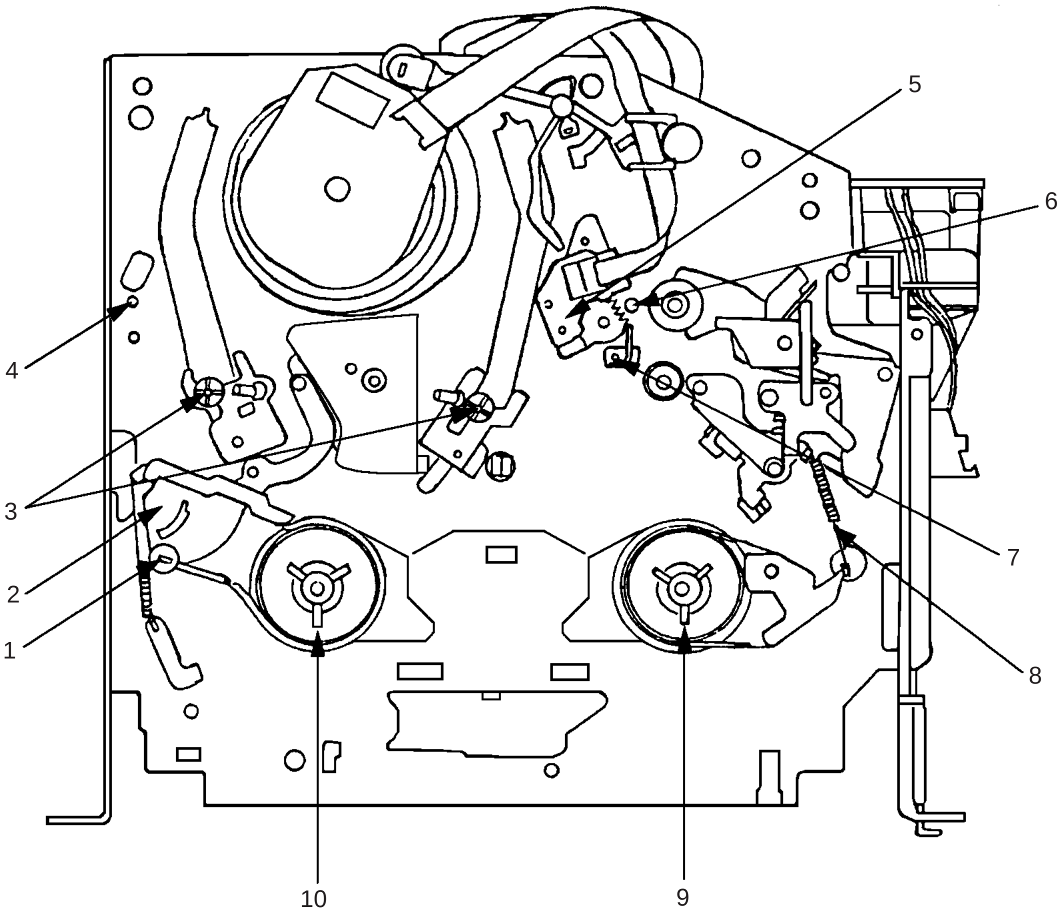
Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP4001**, CH-2 to **TP1002** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape.
7. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver **(JG153)** to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-1-A**.

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Adjust	6. X value adjustment driver hole
2. Tension Arm	7. P4 Post
3. Guide Roller	8. T Brake Spring
4. P1 Post	9. T Reel
5. Audio/Control Head	10. S Reel

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
  Inferior silicon grease can damage IC's and transistors.
- When replacing IC's and transistors, use only specified silicon grease.
  Remove all old silicon before applying new silicon.

On-Screen Display Adjustment

1. Unplug the AC plug for more than 5 seconds to set the clock to the non-setting state. Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control simultaneously to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

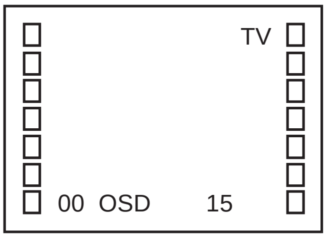


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
4. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	13	BRIGHTNESS
01	CUT OFF	14	CONTRAST
02	RF DELAY	15	COLOR
03	VIF VCO	16	TINT
04	H VCO	17	SHARPNESS
05	H PHASE	18	FM LEVEL
06	V SIZE	19	LEVEL
07	V SHIFT	20	SEPARATION 1
08	R DRIVE	21	SEPARATION 2
09	B DRIVE	22	TEST MONO
10	R CUT OFF	23	TEST STEREO
11	G CUT OFF	24	X-RAY TEST
12	B CUT OFF		

Fig. 1-2

2. BASIC ADJUSTMENTS (VCR SECTION)

2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to **TP1002** and CH-2 to **TP4201**.
2. Playback the alignment tape.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

5. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button **(4)** on the remote control simultaneously and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes 6.5 ± 0.5H.
   (Refer to Fig. 2-1-A, B)
7. Press the Tracking Auto button.

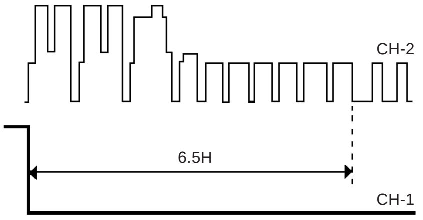


Fig. 2-1-A

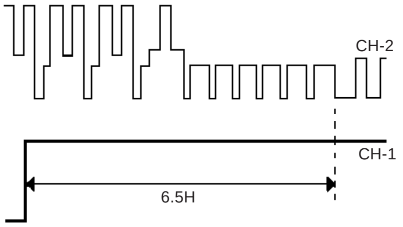


Fig. 2-1-B

2-2: VCO FREERUN

1. Place the set with Aging Test for more than 10 minutes.
2. Receive the VHF HIGH.
3. Disconnect the Antenna while receiving the VHF HIGH and set to the Noise screen.
4. Once turn off the Power and turn on the Power again.
5. Approxi. 3 seconds later, input the Antenna again.
6. Connect the digital voltmeter between the **pin 7 of CP602** and the **pin 1 (GND) of CP602**.
7. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "VIF VCO".
8. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.5 ± 0.5V.

ELECTRICAL ADJUSTMENTS

2-3: RF AGC

1. Receive a 70dB monoscope pattern.
2. Connect the digital voltmeter between the **pin 5 of CP602** and the **pin 1 (GND) of CP602**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "RF DELAY".
4. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.45 ± 0.05V.

(TV SECTION)

2-4: CONSTANT VOLTAGE

1. Input DC12V to DC Jack and turn the Power ON.
2. Connect the digital voltmeter to the **TP401**.
3. Set condition is AV MODE without signal.
4. Adjust the **VR501** until the DC voltage is 134 ± 0.5V.
5. Input AC120V to AC cord and remove the DC Jack cord. Check if the Power is ON before doing the above procedure.
6. Adjust the **VR502** until the DC voltage is 135 ± 0.5V.

2-5: CUT OFF

1. Adjust the unit to the following settings.
   R CUT OFF=128, G CUT OFF=128, B CUT OFF=128,
   R DRIVE=64, B DRIVE=64, BRIGHTNESS=128,
   CONTRAST=96
2. Place the set with Aging Test for more than 15 minutes.
3. Set condition is AV MODE without signal.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
5. Adjust the **Screen Volume** until a dim raster is obtained.

2-6: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the color bar pattern.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(10)** on the remote control to select "R CUT OFF".
5. Using the VOL. UP/DOWN button on the remote control, adjust the R CUT OFF.
6. Press the CH. UP/DOWN button on the remote control to select the "R DRIVE", "B DRIVE", "G CUT OFF" or "B CUT OFF".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R DRIVE, B DRIVE, G CUT OFF or B CUT OFF.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

2-7: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

2-8: HORIZONTAL PHASE

1. Receive the center cross signal from the Pattern Generator.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(05)** on the remote control to select "H PHASE".
3. Press the VOL. UP/DOWN button on the remote control until the right and left screen size of the vertical line becomes the same.

2-9: VERTICAL SHIFT

1. Receive the center cross signal from the Pattern Generator.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V SHIFT".
3. Press the VOL. UP/DOWN button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.

2-10: VERTICAL SIZE

1. Receive the cross hatch signal from the Pattern Generator.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "V SIZE".
3. Press the VOL. UP/DOWN button on the remote control until the rectangle on the center of the screen becomes square.
4. Receive a broadcast and check if the picture is normal.

2-11: SUB BRIGHTNESS

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "BRIGHTNESS".
4. Press the VOL. UP/DOWN button on the remote control until the white 10% is starting to be visible
5. Receive the monoscope pattern. (Audio Video Input)
6. Press the TV GAME button on the remote control to set to the AV mode.
7. Using the remote control, set the brightness and contrast to normal position.
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "BRIGHTNESS".
9. Press the VOL. UP/DOWN button on the remote control until the white 5% is starting to be visible

2-12: SUB TINT

1. Receive the color bar pattern. (RF Input)
2. Connect the synchro scope to **TP803**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "TINT".
4. Press the VOL. UP/DOWN button on the remote control until the waveform becomes as shown in **Fig. 2-2**.
5. Receive the color bar pattern. (Audio Video Input)
6. Press the TV GAME button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

ELECTRICAL ADJUSTMENTS

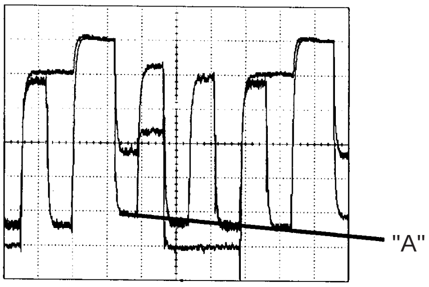


Fig. 2-2

2-13: SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Connect the synchro scope to **TP801**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(15)** on the remote control to select "COLOR".
4. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
5. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 110% of the white level. **(Refer to Fig. 2-3)**
6. Receive the color bar pattern. (Audio Video Input)
7. Press the TV GAME button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

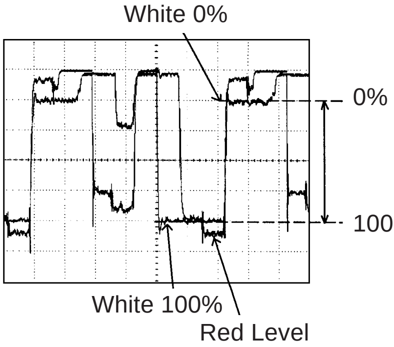


Fig. 2-3

2-14: SUB CONTRAST

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(14)** on the remote control to select "CONTRAST".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "72"
3. Press the TV GAME button on the remote control to set to the AV mode. Then perform the above adjustments 1~2.

2-15: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-4)**

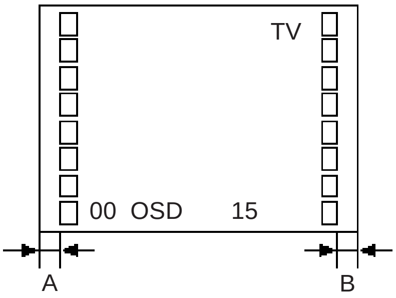
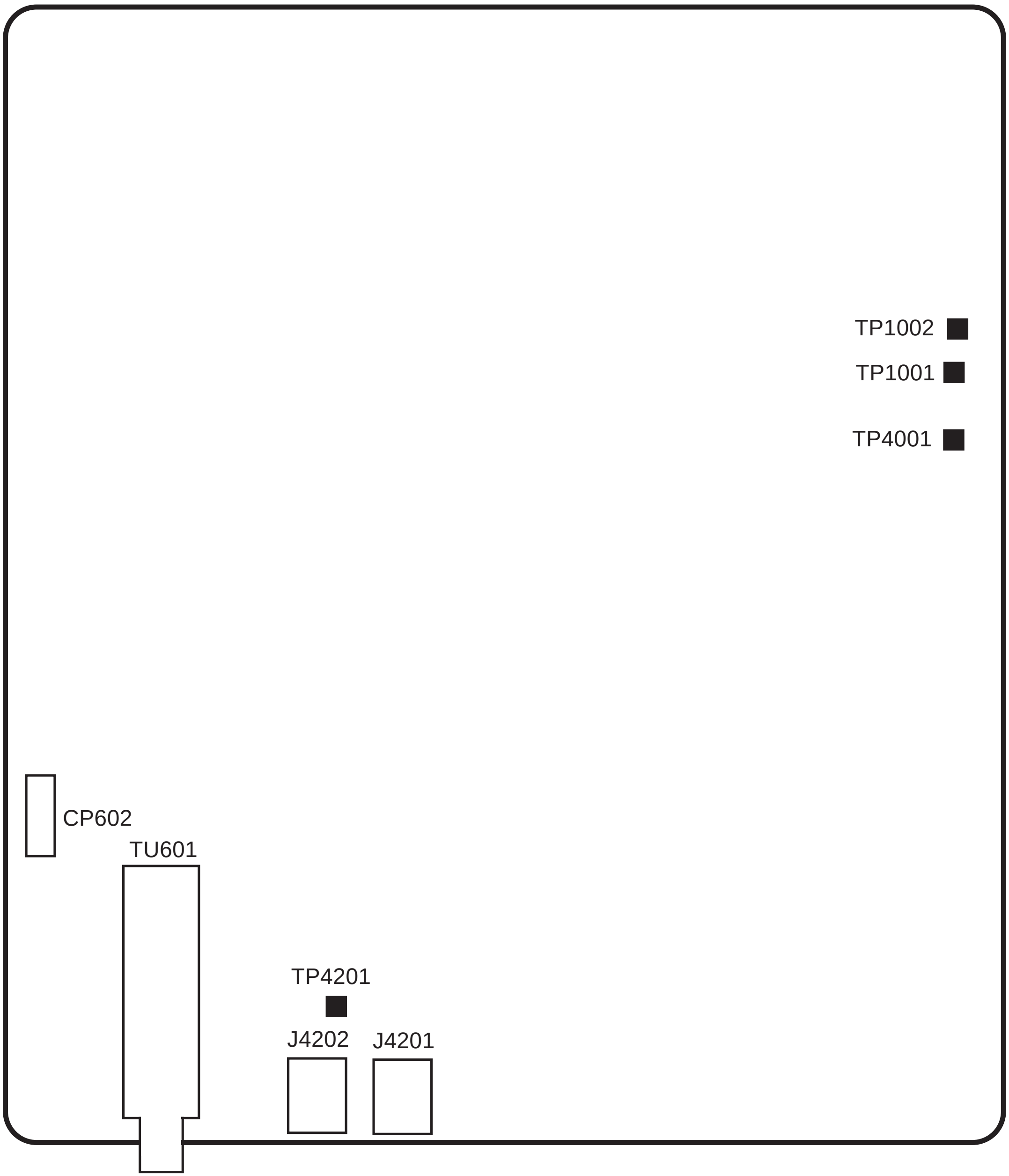


Fig. 2-4

ELECTRICAL ADJUSTMENTS

3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE

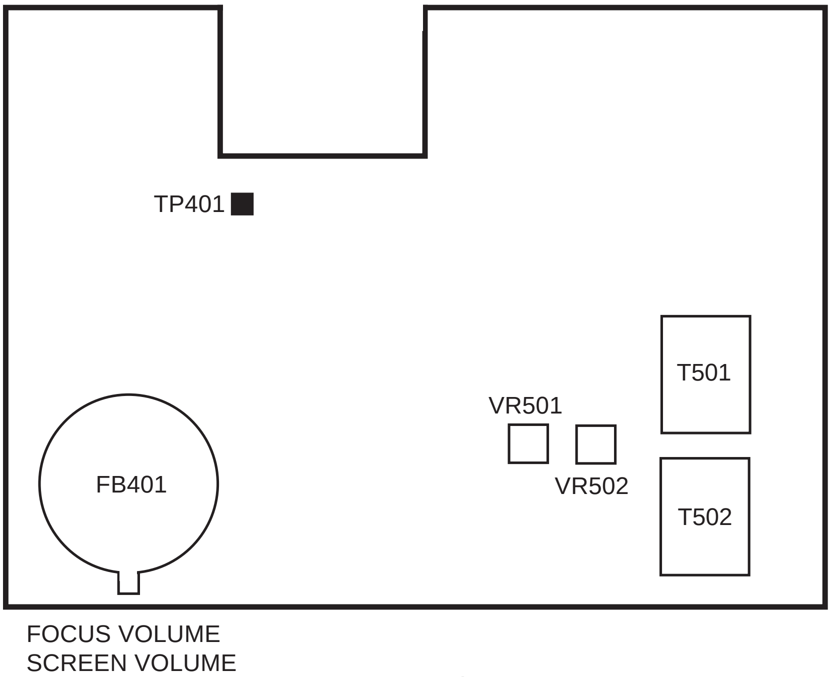
(VCR SECTION)


TP1002
TP1001
TP4001
CP602
TU601
TP4201
J4202
J4201

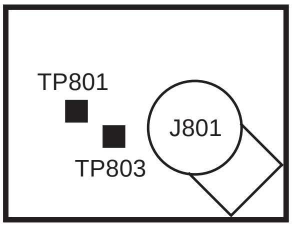
SYSCON PCB

ELECTRICAL ADJUSTMENTS

(TV SECTION)


TP401
T501
VR501
FB401
VR502
T502
FOCUS VOLUME
SCREEN VOLUME

MAIN PCB


TP801
J801
TP803

CRT PCB

ELECTRICAL ADJUSTMENTS

4. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

4-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 4-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

4-2: PURITY

NOTE

Adjust after performing adjustments in section 4-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

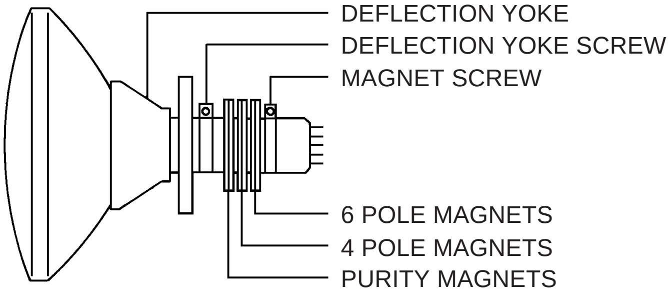


Fig. 4-1

4-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-2.

1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

4-4: DYNAMIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left.
   (Refer to Fig. 4-2-a)
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke.
   (Refer to Fig. 4-2-b)

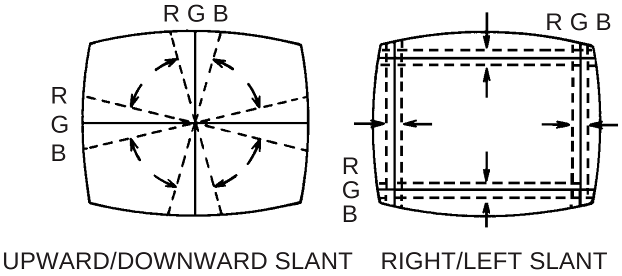
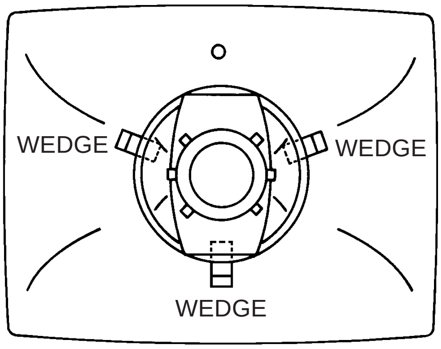


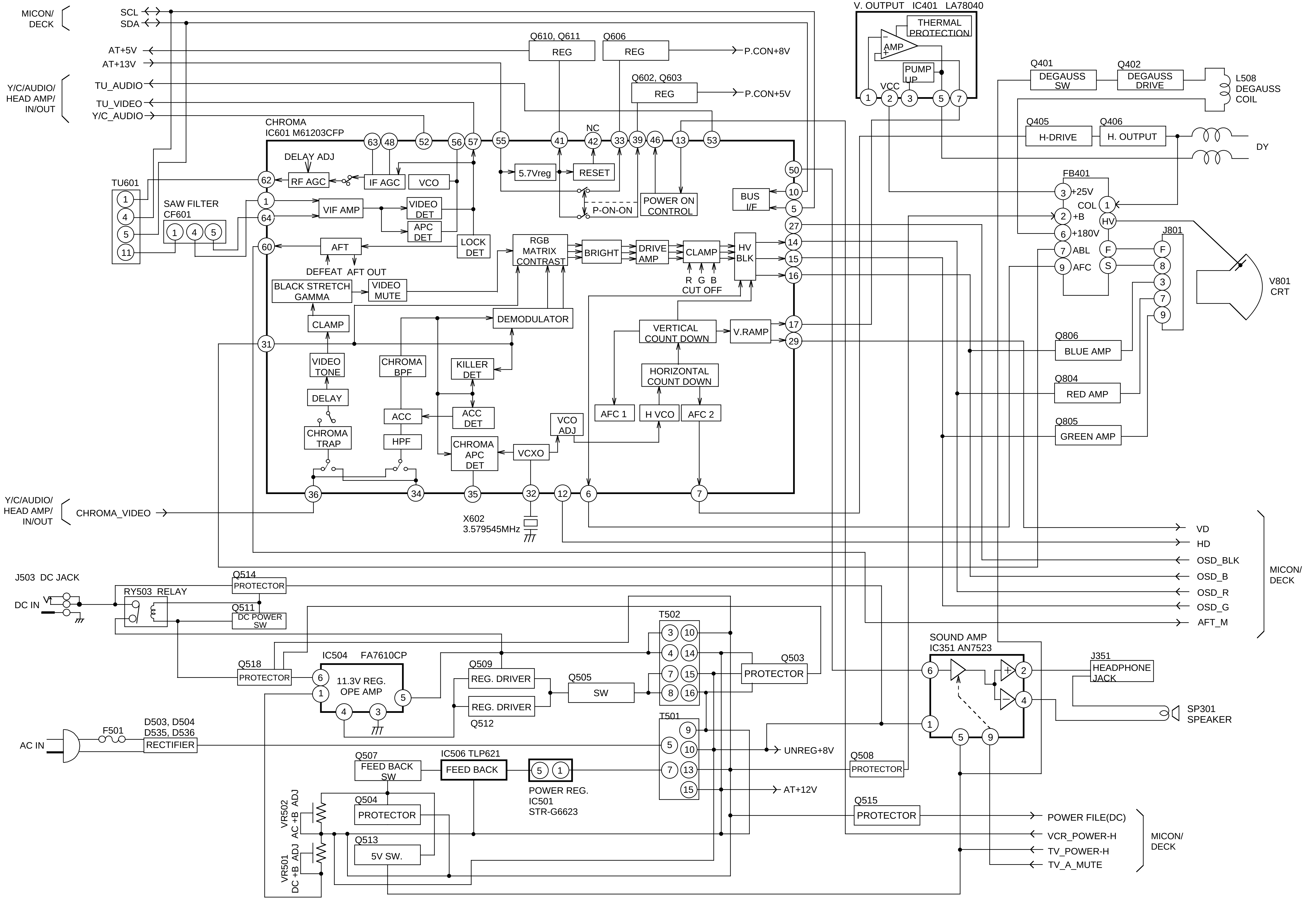
Fig. 4-2-a



WEDGE POSITION

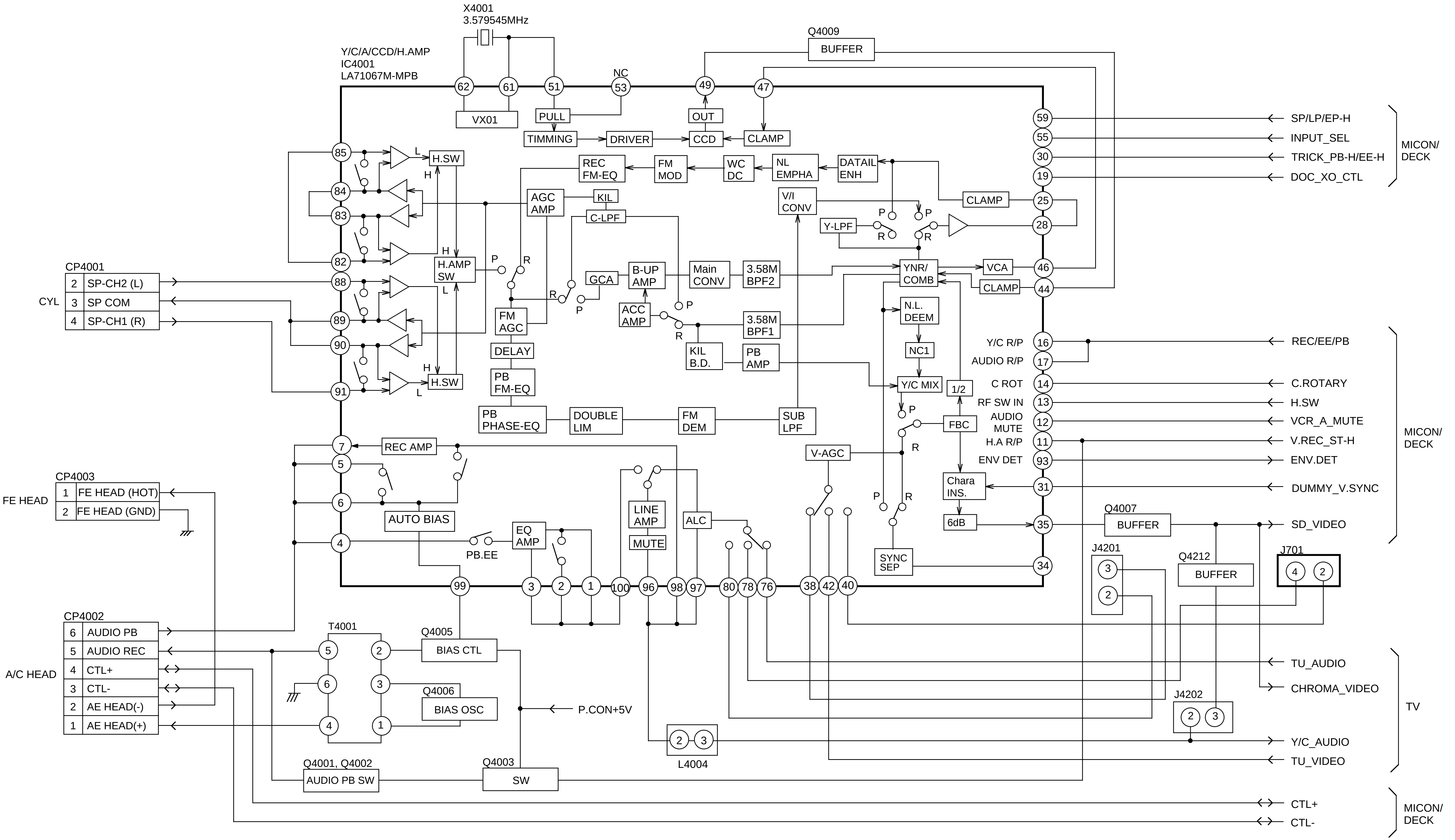
Fig. 4-2-b

TV BLOCK DIAGRAM

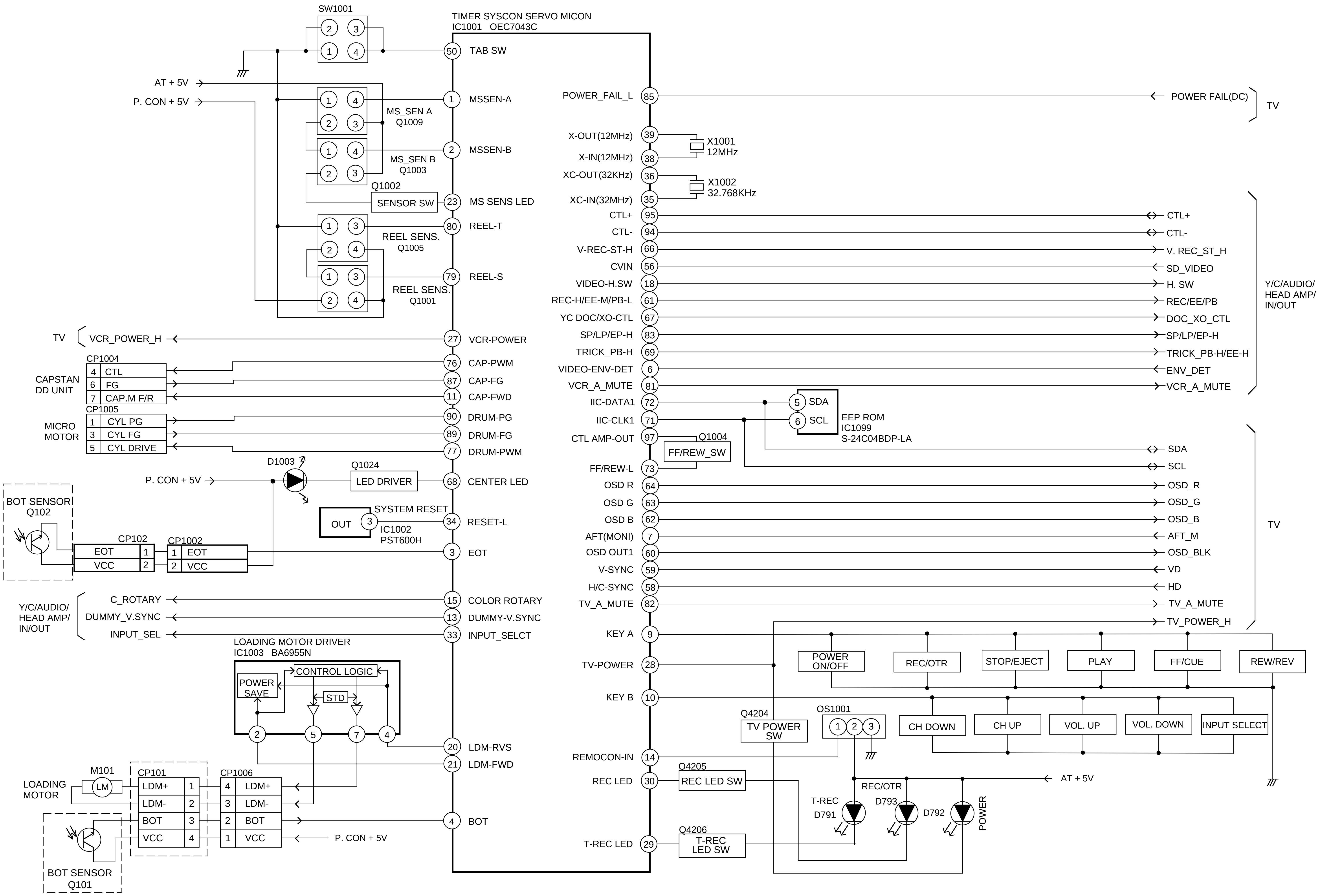


MICON/ DECK
SCL
SDA
AT+5V
AT+13V
Y/C_AUDIO/ HEAD AMP/ IN/OUT
TU_AUDIO
TU_VIDEO
Y/C_AUDIO
CHROMA IC601 M61203CFP
Q610, Q611
REG
Q606
REG
P.CON+8V
Q602, Q603
REG
P.CON+5V
NC
63
48
52
56
57
55
41
42
33
39
46
13
53
DELAY ADJ
RF AGC
IF AGC
VCO
5.7Vreg
RESET
TU601
SAW FILTER CF601
VIF AMP
VIDEO DET
APC DET
LOCK DET
AFT
DEFEAT
AFT OUT
P-ON-ON
POWER ON CONTROL
BUS I/F
50
10
5
27
14
15
16
17
29
62
1
64
60
31
RGB MATRIX CONTRAST
BRIGHT
DRIVE AMP
CLAMP
HV BLK
R G B CUT OFF
BLACK STRETCH GAMMA
VIDEO MUTE
CLAMP
DEMODULATOR
VIDEO TONE
CHROMA BPF
KILLER DET
VERTICAL COUNT DOWN
V.RAMP
HORIZONTAL COUNT DOWN
DELAY
ACC
ACC DET
AFC 1
H VCO
AFC 2
VCO ADJ
CHROMA TRAP
HPF
CHROMA APC DET
VCXO
36
34
35
32
12
6
7
X602 3.579545MHz
CHROMA_VIDEO
V. OUTPUT IC401 LA78040
THERMAL PROTECTION
AMP
PUMP UP
VCC
Q401
DEGAUSS SW
Q402
DEGAUSS DRIVE
L508 DEGAUSS COIL
Q405
H-DRIVE
Q406
H. OUTPUT
DY
FB401
+25V
COL
+B
HV
+180V
ABL
AFC
F
S
J801
V801 CRT
Q806
BLUE AMP
Q804
RED AMP
Q805
GREEN AMP
VD
HD
OSD_BLK
OSD_B
OSD_R
OSD_G
AFT_M
MICON/ DECK
J503 DC JACK
DC IN
RY503 RELAY
Q514
PROTECTOR
Q511
DC POWER SW
T502
Q518
PROTECTOR
IC504 FA7610CP
11.3V REG. OPE AMP
Q509
REG. DRIVER
Q505
SW
REG. DRIVER
Q512
Q503
PROTECTOR
SOUND AMP IC351 AN7523
J351
HEADPHONE JACK
SP301 SPEAKER
AC IN
F501
D503, D504 D535, D536
RECTIFIER
T501
UNREG+8V
Q507
FEED BACK SW
IC506 TLP621
FEED BACK
POWER REG. IC501 STR-G6623
Q508
PROTECTOR
AT+12V
Q504
PROTECTOR
Q515
PROTECTOR
POWER FILE(DC)
VCR_POWER-H
TV_POWER-H
TV_A_MUTE
MICON/ DECK
Q513
5V SW.
VR502 AC +B ADJ
VR501 DC +B ADJ

Y/C/AUDIO/HEAD AMP/IN/OUT BLOCK DIAGRAM


X4001
3.579545MHz
Y/C/A/CCD/H.AMP
IC4001
LA71067M-MPB
Q4009
BUFFER
62
61
51
NC
53
49
47
VX01
PULL
OUT
TIMMING
DRIVER
CCD
CLAMP
59
SP/LP/EP-H
55
INPUT_SEL
30
TRICK_PB-H/EE-H
19
DOC_XO_CTL
MICON/
DECK
85
84
83
82
88
89
90
91
L
H.SW
H
REC
FM-EQ
FM
MOD
WC
DC
NL
EMPHA
DATAIL
ENH
AGC
AMP
KIL
C-LPF
V/I
CONV
CLAMP
25
P
P
Y-LPF
R
R
28
H
H.AMP
SW
L
P
R
GCA
B-UP
AMP
Main
CONV
3.58M
BPF2
YNR/
COMB
VCA
46
CLAMP
44
CP4001
2
SP-CH2 (L)
CYL
3
SP COM
4
SP-CH1 (R)
R
P
ACC
AMP
P
R
3.58M
BPF1
FM
AGC
N.L.
DEEM
DELAY
KIL
B.D.
PB
AMP
NC1
Y/C R/P
16
REC/EE/PB
AUDIO R/P
17
H
H.SW
L
PB
FM-EQ
Y/C MIX
1/2
C ROT
14
C.ROTARY
P
RF SW IN
13
H.SW
PB
PHASE-EQ
DOUBLE
LIM
FM
DEM
SUB
LPF
FBC
AUDIO
MUTE
12
VCR_A_MUTE
R
H.A R/P
11
V.REC_ST-H
7
REC AMP
V-AGC
ENV DET
93
ENV.DET
MICON/
DECK
5
CP4003
1
FE HEAD (HOT)
FE HEAD
2
FE HEAD (GND)
6
AUTO BIAS
LINE
AMP
ALC
P
R
Chara
INS.
31
DUMMY_V.SYNC
Q4007
6dB
35
BUFFER
SD_VIDEO
4
PB.EE
EQ
AMP
MUTE
SYNC
SEP
34
J4201
3
2
Q4212
BUFFER
J701
4
2
99
3
2
1
100
96
98
97
80
78
76
38
42
40
CP4002
6
AUDIO PB
T4001
Q4005
5
AUDIO REC
5
2
BIAS CTL
A/C HEAD
4
CTL+
TU_AUDIO
3
CTL-
6
3
Q4006
CHROMA_VIDEO
2
AE HEAD(-)
BIAS OSC
J4202
TV
P.CON+5V
2
3
1
AE HEAD(+)
4
1
2
3
Y/C_AUDIO
L4004
Q4001, Q4002
Q4003
TU_VIDEO
AUDIO PB SW
SW
CTL+
CTL-
MICON/
DECK

MICON/DECK BLOCK DIAGRAM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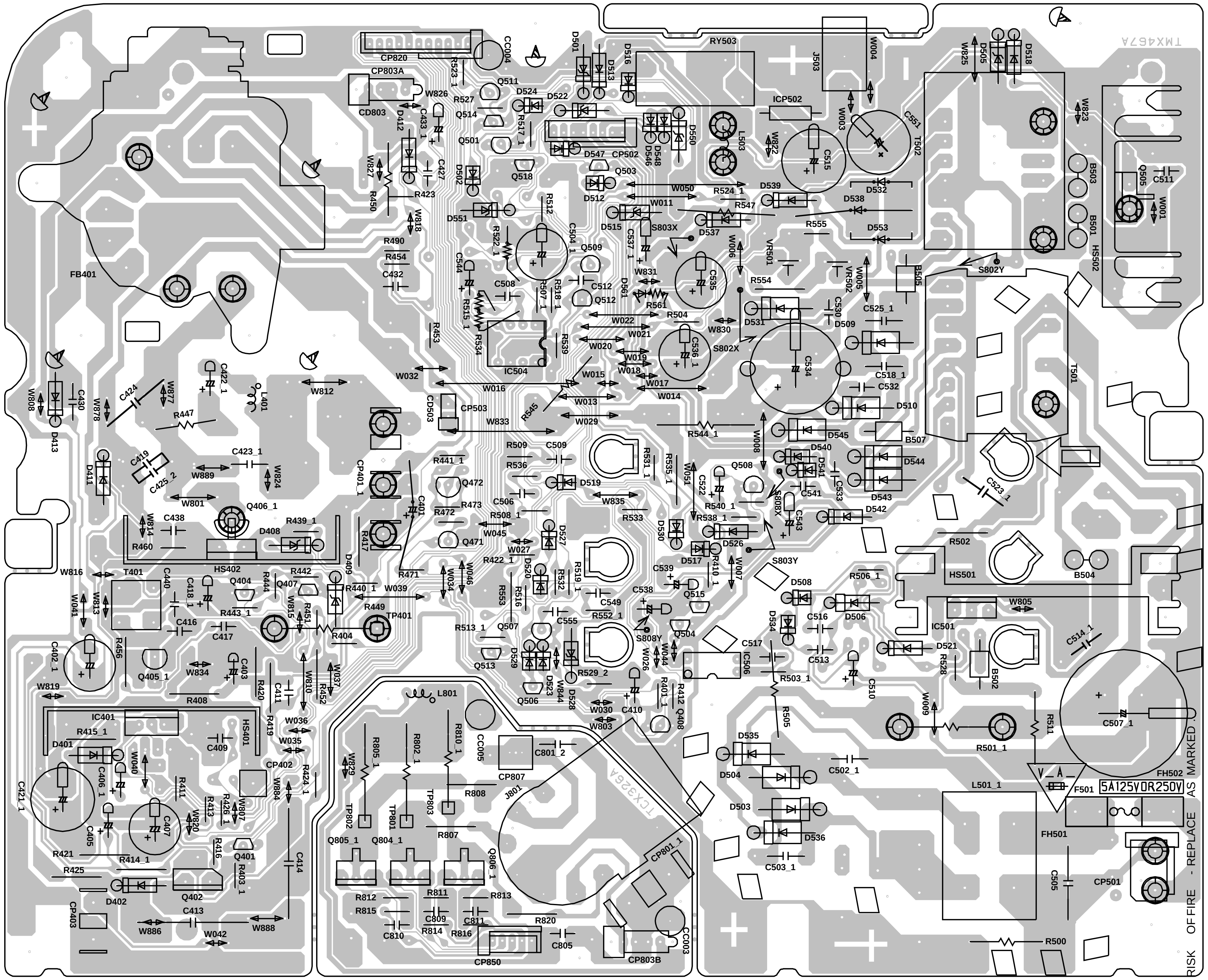
TIMER SYSCON SERVO MICON
IC1001 OEC7043C
50 TAB SW
AT + 5V
P. CON + 5V
1 MSSEN-A
MS_SEN A
Q1009
2 MSSEN-B
MS_SEN B
Q1003
Q1002
SENSOR SW
23 MS SENS LED
80 REEL-T
REEL SENS.
Q1005
79 REEL-S
REEL SENS.
Q1001
TV
VCR_POWER_H
27 VCR-POWER
CP1004
CAPSTAN
DD UNIT
4 CTL
6 FG
7 CAP.M F/R
76 CAP-PWM
87 CAP-FG
11 CAP-FWD
CP1005
MICRO
MOTOR
1 CYL PG
3 CYL FG
5 CYL DRIVE
90 DRUM-PG
89 DRUM-FG
77 DRUM-PWM
D1003
Q1024
P. CON + 5V
LED DRIVER
68 CENTER LED
BOT SENSOR
Q102
OUT
SYSTEM RESET
IC1002
PST600H
34 RESET-L
CP102
CP1002
EOT
VCC
3 EOT
Y/C/AUDIO/
HEAD AMP/
IN/OUT
C_ROTARY
DUMMY_V.SYNC
INPUT_SEL
15 COLOR ROTARY
13 DUMMY-V.SYNC
33 INPUT_SELCT
LOADING MOTOR DRIVER
IC1003 BA6955N
CONTROL LOGIC
POWER
SAVE
STD
20 LDM-RVS
21 LDM-FWD
M101
LOADING
MOTOR
LM
CP101
CP1006
LDM+
LDM-
BOT
VCC
P. CON + 5V
4 BOT
BOT SENSOR
Q101
POWER_FAIL_L 85
POWER FAIL(DC)
TV
X-OUT(12MHz) 39
X-IN(12MHz) 38
X1001
12MHz
XC-OUT(32KHz) 36
XC-IN(32MHz) 35
X1002
32.768KHz
CTL+ 95 CTL+
CTL- 94 CTL-
V-REC-ST-H 66 V. REC_ST_H
CVIN 56 SD_VIDEO
VIDEO-H.SW 18 H. SW
REC-H/EE-M/PB-L 61 REC/EE/PB
YC DOC/XO-CTL 67 DOC_XO_CTL
SP/LP/EP-H 83 SP/LP/EP-H
TRICK_PB-H 69 TRICK_PB-H/EE-H
VIDEO-ENV-DET 6 ENV_DET
VCR_A_MUTE 81 VCR_A_MUTE
Y/C/AUDIO/
HEAD AMP/
IN/OUT
IIC-DATA1 72
IIC-CLK1 71
5 SDA
6 SCL
EEP ROM
IC1099
S-24C04BDP-LA
CTL AMP-OUT 97
Q1004
FF/REW_SW
SDA
SCL
FF/REW-L 73
OSD R 64 OSD_R
OSD G 63 OSD_G
OSD B 62 OSD_B
AFT(MONI) 7 AFT_M
OSD OUT1 60 OSD_BLK
V-SYNC 59 VD
H/C-SYNC 58 HD
TV_A_MUTE 82 TV_A_MUTE
TV_POWER_H
TV
KEY A 9
POWER
ON/OFF
REC/OTR
STOP/EJECT
PLAY
FF/CUE
REW/REV
TV-POWER 28
KEY B 10
Q4204
TV POWER
SW
OS1001
CH DOWN
CH UP
VOL. UP
VOL. DOWN
INPUT SELECT
REMOCON-IN 14
Q4205
REC LED 30
REC LED SW
AT + 5V
REC/OTR
T-REC
D791
D793
D792
POWER
Q4206
T-REC LED 29
T-REC
LED SW

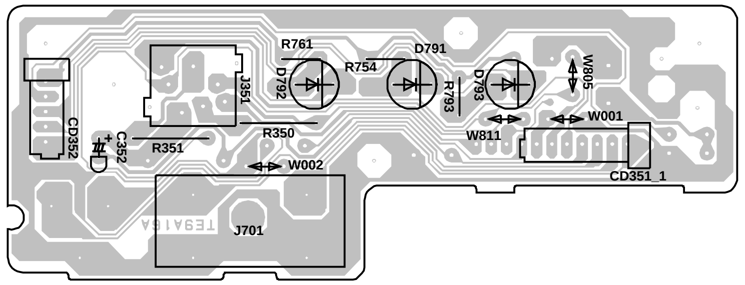
PRINTED CIRCUIT BOARDS
MAIN/CRT
SOLDER SIDE



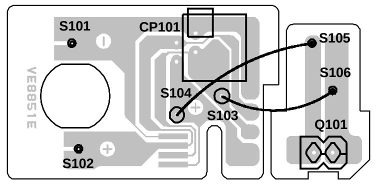
TMX467A
TCX326A
CP820
CP803A
CD803
CC004
RY503
J503
W004
ICP502
C551
T502
W825
D505
D518
W823
B503
Q505
C511
W001
B501
HS502
FB401
W808
C430
D413
W878
C424
W877
C422_1
L401
W812
R447
D411
C419
C425_2
C423_1
W889
W824
W801
Q406_1
C438
W814
R460
D408
R439_1
HS402
W816
T401
C440
C418_1
Q404
R444
Q407
R442
D409
R440_1
W039
R449
TP401
W041
W813
C416
C417
R443_1
W815
R451
R404
C402_1
R456
Q405_1
W834
C403
W819
R408
R420
C411
W810
W037
R452
IC401
R415_1
HS401
R419
W036
W035
D401
C409
CP402
W040
C406_1
R411
R413
R426_1
W807
W884
R424_1
C421_1
C405
C407
W820
R416
Q401
R403_1
C414
R421
R414_1
R425
Q402
D402
C413
CP403
W886
W042
W888
L801
R805_1
R802_1
R810_1
CC005
W829
TP802
TP801
TP803
R808
C801_2
CP807
J801
Q805_1
Q804_1
R807
Q806_1
R812
R811
R813
R815
C809
C811
C810
R814
R816
R820
CP850
C805
CP801_1
CP803B
CC003
W826
R527
Q511
D524
Q514
D522
D412
C433_1
Q501
R517_1
W827
R450
C427
D502
Q518
R423
W818
R490
R454
C432
D551
R512
R522_1
C504_1
C544
R515_1
C508
R507_1
R518_1
Q509
Q512
C512
R453
R534
R539
IC504
W032
W016
CD503
CP503
W833
R545
W013
W029
CP401_1
R509
C509
R536
R441_1
Q472
C506
C401
R472
R473
R508_1
R417
Q471
W045
W027
D527
R422_1
R471
W034
W046
D520
R516
R532
R519_1
R553
C555
C549
R552_1
R513_1
Q507
Q513
D529
D523
R529_2
W844
D528
Q506
W030
W803
C410
D501
D516
D513
D547
CP502
D548
D546
D550
L503
W822
W003
C515
Q503
D512
W050
R524_1
D539
W011
R547
D538
D532
D515
S803X
C537_1
D537
W006
VR501
R555
D553
W831
D561
R561
C535
R554
VR502
W005
B505
S802Y
R504
W022
W021
W830
D531
C530
C525_1
D509
W020
W019
C536_1
S802X
W015
W018
W017
W014
C534
C518_1
C532
D510
T501
R544_1
W008
D545
B507
D540
D541
D544
D543
Q508
C541
C522
C533
R531_1
R535_1
W051
D519
W835
R533
R540_1
S808X
R538_1
C543
D542
C523_1
D530
D526
D517
R410_1
W007
S803Y
C539
C538
Q515
D508
R506_1
R502
HS501
B504
D534
C516
D506
W805
S808Y
Q504
W026
W044
IC506
C517
C513
IC501
D521
C514_1
R401_1
R412
Q408
R503_1
R528
B502
C510
W009
R505
D535
R501_1
R511
C507_1
C502_1
D504
FH502
L501_1
F501
5A125V0R250V
D503
D536
FH501
C503_1
C505
CP501
R500
RISK OF FIRE - REPLACE AS MARKED

PRINTED CIRCUIT BOARDS

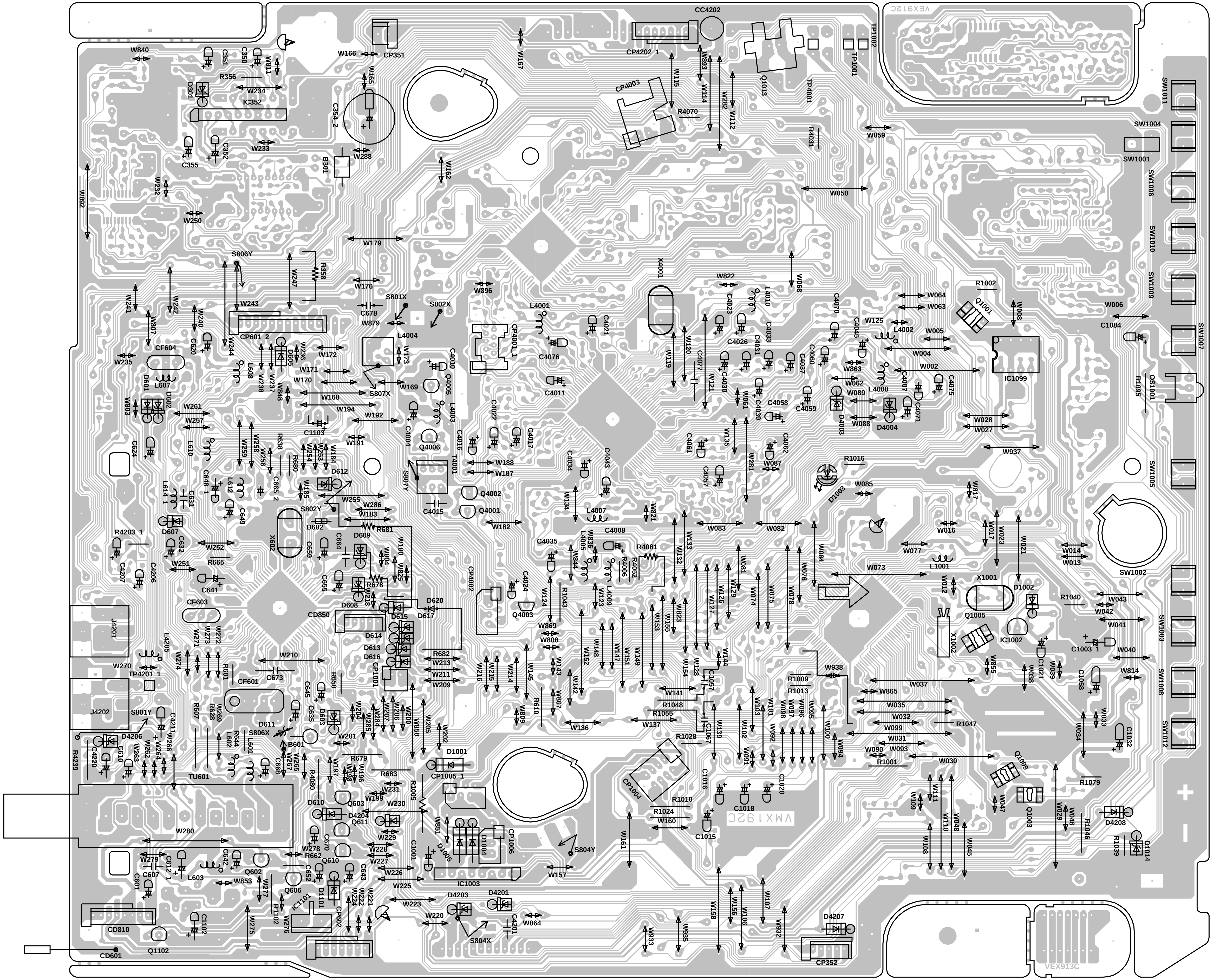
OPERATION
SOLDER SIDE


R761
D791
R754
D792
J351
R793
D793
W805
W001
W811
CD352
C352
R351
R350
W002
CD351_1
TE9A16A
J701

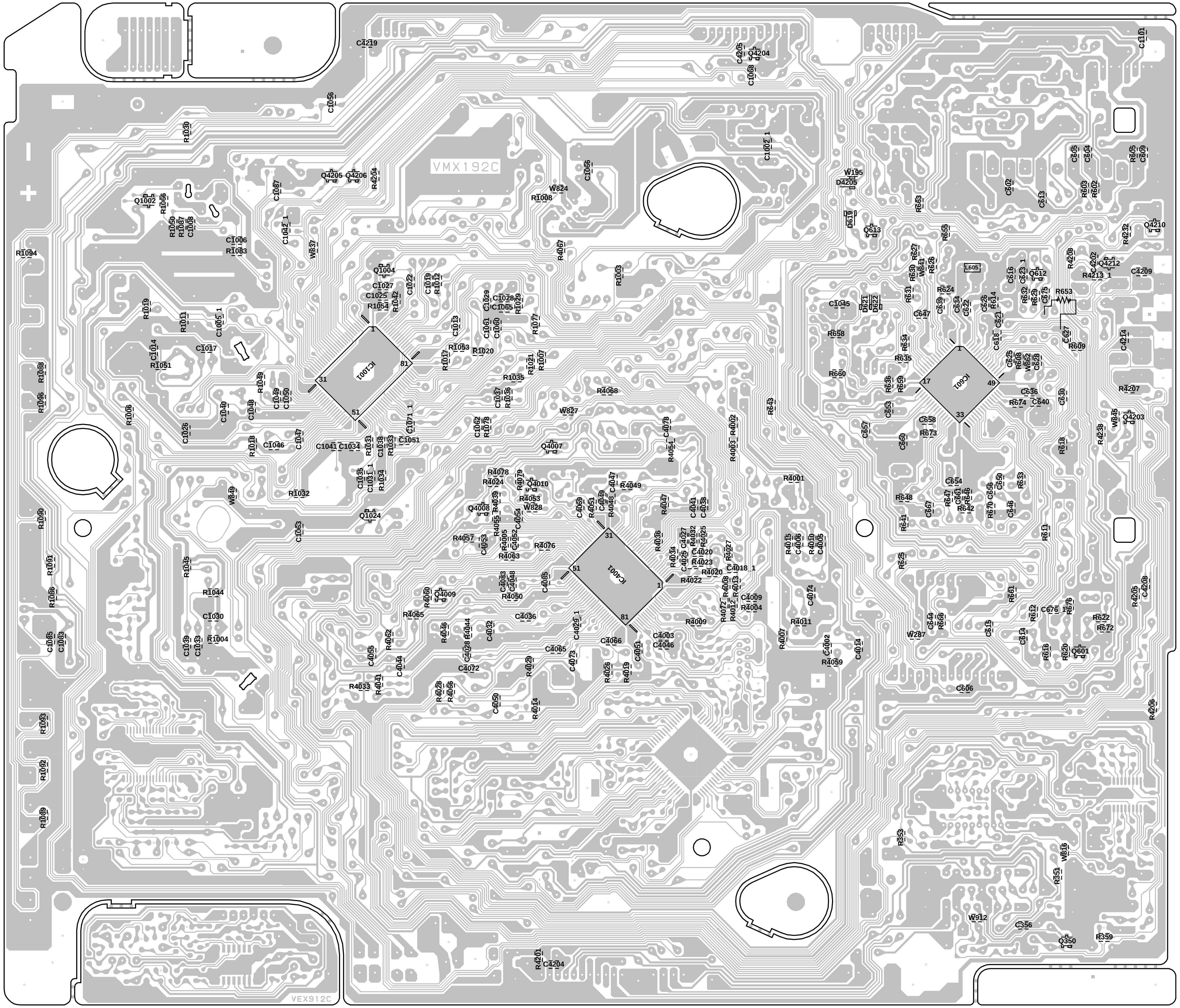
DECK
SOLDER SIDE


S101
CP101
S105
VE8851E
S106
S104
S103
Q101
S102

PRINTED CIRCUIT BOARDS
SYSCON (INSERTED PARTS)
SOLDER SIDE

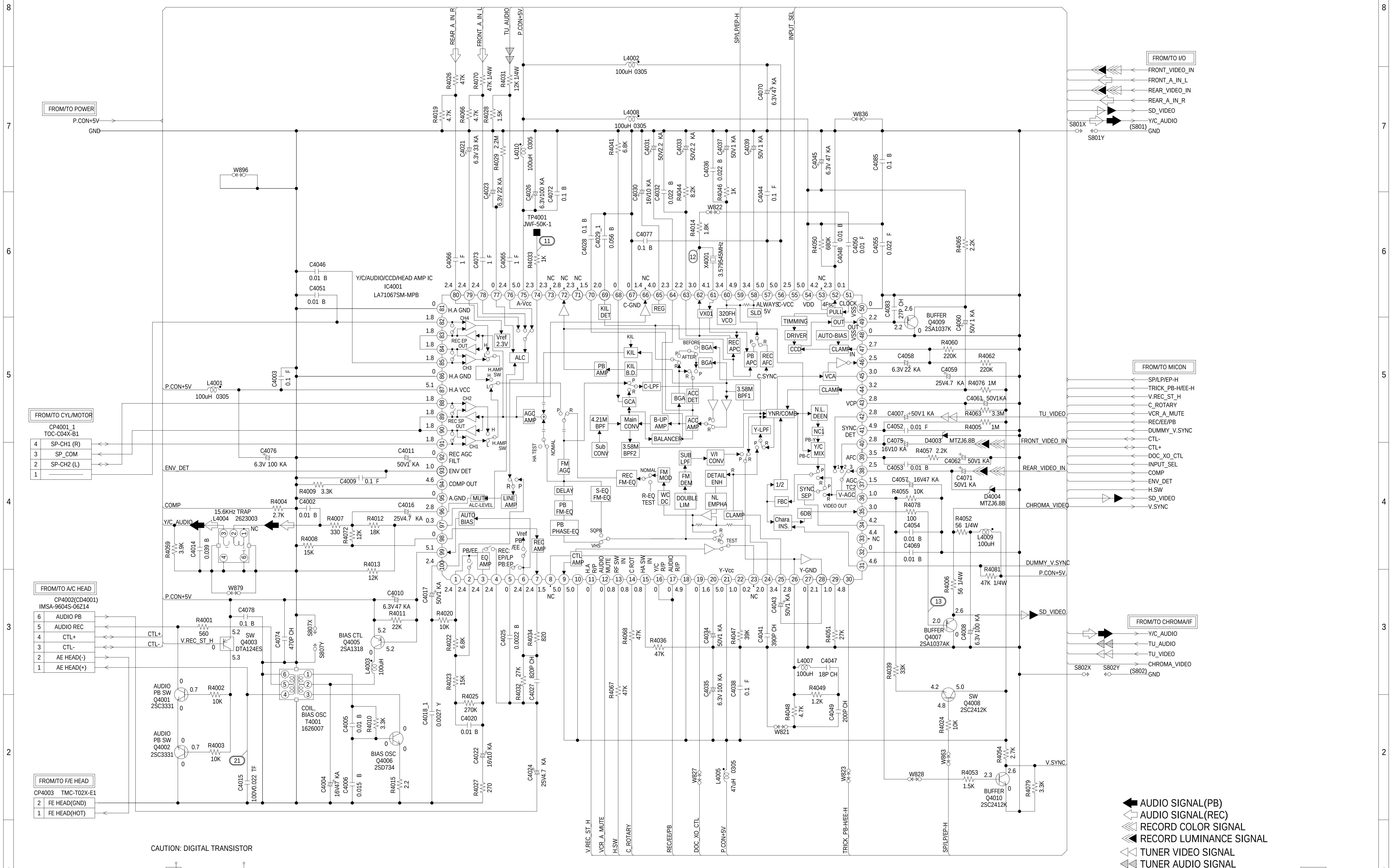

VEX912C
VEX913C
VMX192C
CC4202
CP4202_1
CP4003
CP351
CP601_2
CP4001_1
CP4002
CP1001
CP1004
CP1005_1
CP1006
CP602
CP352
IC352
IC1099
IC1002
IC1003
IC1101
X4001
X1001
X1002
X602
TU601
J4201
J4202
CD850
CD810
CD601
CF604
CF603
CF601
Q1001
Q1003
Q1005
Q1006
Q1013
Q1102
Q4001
Q4002
Q4003
Q4005
Q4006
Q603
Q606
Q610
Q611
Q602
QS1001
SW1011
SW1004
SW1001
SW1006
SW1010
SW1009
SW1007
SW1005
SW1002
SW1003
SW1008
SW1012
S806Y
S801X
S802X
S807X
S807Y
S802Y
S801Y
S806X
S804Y
S804X
TP1002
TP1001
TP4001
TP4201_1
B301
B601
B602
D301
D601
D602
D605
D607
D608
D609
D611
D612
D613
D614
D615
D616
D617
D620
D1001
D1002
D1003
D1004
D1005
D1014
D1101
D4004
D4005
D4201
D4203
D4204
D4206
D4207
D4208
L4001
L4002
L4003
L4004
L4005
L4007
L4008
L4009
L4010
L4205
L1001
L601
L602
L603
L607
L608
L610
L612
L614_1
W840
W892
W050
W059
W179
W182
W210
W280
R1002
R1016
R1040
R1047
R1079
R4070
R4031
R4081
R4239
R4203_1
R356
R358
R665
R681
R682
R683
R679
R1005
C1084
C4015
C4076
C4011
C673
C1102
C4201
C4207
C4220
+
–

PRINTED CIRCUIT BOARDS
SYSCON (CHIP MOUNTED PARTS)
SOLDER SIDE

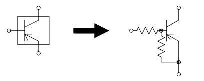

VMX192C
VEX912C
IC1001
IC4001
IC601

Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM

(SYSCON PCB)


FROM/TO POWER
P.CON+5V
GND
FROM/TO CYL/MOTOR
CP4001_1
TOC-C04X-B1
4 SP-CH1 (R)
3 SP_COM
2 SP-CH2 (L)
1
FROM/TO A/C HEAD
CP4002(CD4001)
IMSA-9604S-06Z14
6 AUDIO PB
5 AUDIO REC
4 CTL+
3 CTL-
2 AE HEAD(-)
1 AE HEAD(+)
FROM/TO F/E HEAD
CP4003 TMC-T02X-E1
2 FE HEAD(GND)
1 FE HEAD(HOT)
Y/C/AUDIO/CCD/HEAD AMP IC
IC4001
LA71067SM-MPB
15.6KHz TRAP
L4004 2623003
AUDIO PB SW Q4001 2SC3331
AUDIO PB SW Q4002 2SC3331
SW Q4003 DTA124ES
BIAS CTL Q4005 2SA1318
COIL, BIAS OSC T4001 1626007
BIAS OSC Q4006 2SD734
TP4001 JWF-50K-1
X4001 3.579545MHz
BUFFER Q4009 2SA1037K
BUFFER Q4007 2SA1037AK
SW Q4008 2SC2412K
BUFFER Q4010 2SC2412K
D4003 MTZJ6.8B
D4004 MTZJ6.8B
FROM/TO I/O
FRONT_VIDEO_IN
FRONT_A_IN_L
REAR_VIDEO_IN
REAR_A_IN_R
SD_VIDEO
Y/C_AUDIO
GND
S801X
S801Y
(S801)
FROM/TO MICON
SP/LP/EP-H
TRICK_PB-H/EE-H
V.REC_ST_H
C_ROTARY
VCR_A_MUTE
REC/EE/PB
DUMMY_V.SYNC
CTL-
CTL+
DOC_XO_CTL
INPUT_SEL
COMP
ENV_DET
H.SW
SD_VIDEO
V.SYNC
FROM/TO CHROMA/IF
Y/C_AUDIO
TU_AUDIO
TU_VIDEO
CHROMA_VIDEO
GND
S802X
S802Y
(S802)
REAR_A_IN_R
FRONT_A_IN_L
TU_AUDIO
P.CON+5V
SP/LP/EP-H
INPUT_SEL
V.REC_ST_H
VCR_A_MUTE
H.SW
C_ROTARY
REC/EE/PB
DOC_XO_CTL
P.CON+5V
TRICK_PB-H/EE-H
SP/LP/EP-H
A B C D E F G H
1 2 3 4 5 6 7 8

CAUTION: DIGITAL TRANSISTOR



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

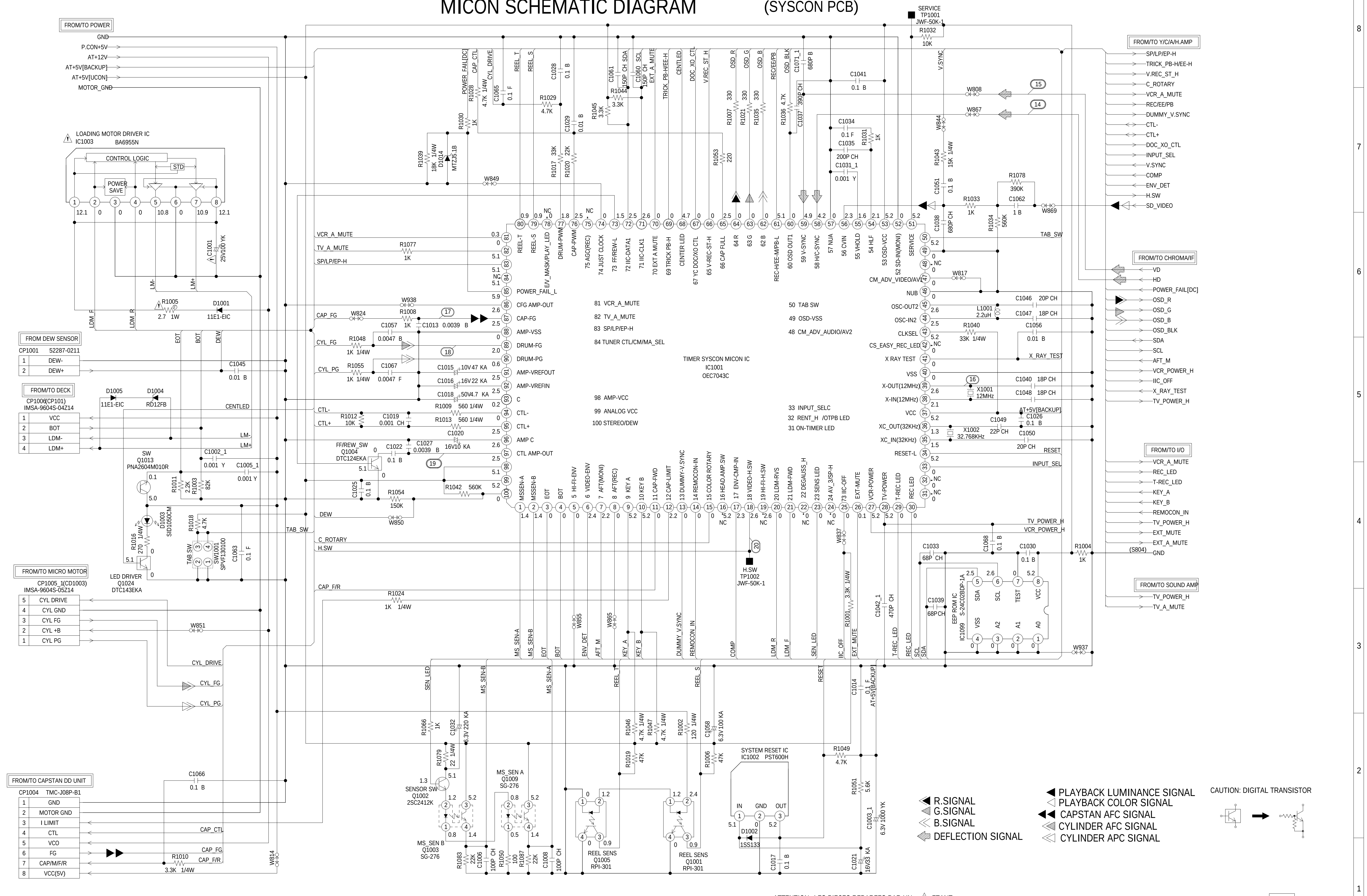
NOTE: THE DC VOLTAGE AT EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

◀ AUDIO SIGNAL(PB)
◁ AUDIO SIGNAL(REC)
◁ RECORD COLOR SIGNAL
◁ RECORD LUMINANCE SIGNAL
◁ TUNER VIDEO SIGNAL
◁ TUNER AUDIO SIGNAL
◀ PLAYBACK LUMINANCE SIGNAL
◀ PLAYBACK COLOR SIGNAL

PCB010
VMX192

MICON SCHEMATIC DIAGRAM (SYSCON PCB)



FROM/TO POWER
GND
P.CON+5V
AT+12V
AT+5V[BACKUP]
AT+5V[UCON]
MOTOR_GND
LOADING MOTOR DRIVER IC
IC1003 BA6955N
CONTROL LOGIC
STD
POWER SAVE
LM-
LM+
R1005 2.7 1W
D1001 11E1-EIC
LDM_F
LDM_R
FROM DEW SENSOR
CP1001 52287-0211
DEW-
DEW+
C1045 0.01 B
FROM/TO DECK
CP1006(CP101) IMSA-9604S-04Z14
D1005 11E1-EIC
D1004 RD12FB
CENTLED
VCC
BOT
LDM-
LDM+
SW Q1013 PNA2604M010R
D1003 SID1050CM
LED DRIVER Q1024 DTC143EKA
TAB SW
SW1001 SPVF130100
FROM/TO MICRO MOTOR
CP1005_1(CD1003) IMSA-9604S-05Z14
CYL DRIVE
CYL GND
CYL FG
CYL +B
CYL PG
W851
FROM/TO CAPSTAN DD UNIT
CP1004 TMC-J08P-B1
GND
MOTOR GND
I LIMIT
CTL
VCO
FG
CAP/M/F/R
VCC(5V)
R1010 3.3K 1/4W
C1066 0.1 B
W814
TIMER SYSCON MICON IC
IC1001
OEC7043C
81 VCR_A_MUTE
82 TV_A_MUTE
83 SP/LP/EP-H
84 TUNER CTL/CM/MA_SEL
98 AMP-VCC
99 ANALOG VCC
100 STEREO/DEW
50 TAB SW
49 OSD-VSS
48 CM_ADV_AUDIO/AV2
33 INPUT_SELC
32 RENT_H /OTPB LED
31 ON-TIMER LED
POWER_FAIL_L
CFG AMP-OUT
CAP-FG
AMP-VSS
DRUM-FG
DRUM-PG
AMP-VREFOUT
AMP-VREFIN
CTL-
CTL+
AMP C
CTL AMP-OUT
SERVICE TP1001 JWF-50K-1
R1032 10K
FROM/TO Y/C/A/H.AMP
SP/LP/EP-H
TRICK_PB-H/EE-H
V.REC_ST_H
C_ROTARY
VCR_A_MUTE
REC/EE/PB
DUMMY_V.SYNC
CTL-
CTL+
DOC_XO_CTL
INPUT_SEL
V.SYNC
COMP
ENV_DET
H.SW
SD_VIDEO
FROM/TO CHROMA/IF
VD
HD
POWER_FAIL[DC]
OSD_R
OSD_G
OSD_B
OSD_BLK
SDA
SCL
AFT_M
VCR_POWER_H
IIC_OFF
X_RAY_TEST
TV_POWER_H
FROM/TO I/O
VCR_A_MUTE
REC_LED
T-REC_LED
KEY_A
KEY_B
REMOCON_IN
TV_POWER_H
EXT_MUTE
EXT_A_MUTE
GND
FROM/TO SOUND AMP
TV_POWER_H
TV_A_MUTE
X1001 12MHz
X1002 32.768KHz
EEP ROM IC IC1099 S-24C02BDP-1A
H.SW TP1002 JWF-50K-1
SENSOR SW Q1002 2SC2412K
MS_SEN B Q1003 SG-276
MS_SEN A Q1009 SG-276
REEL SENS Q1005 RPI-301
REEL SENS Q1001 RPI-301
SYSTEM RESET IC IC1002 PST600H
D1002 1SS133
R.SIGNAL
G.SIGNAL
B.SIGNAL
DEFLECTION SIGNAL
PLAYBACK LUMINANCE SIGNAL
PLAYBACK COLOR SIGNAL
CAPSTAN AFC SIGNAL
CYLINDER AFC SIGNAL
CYLINDER APC SIGNAL
CAUTION: DIGITAL TRANSISTOR

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

NOTE: THE DC VOLTAGE AT EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE
CRITICAL FOR SAFETY,USE ONES
DESCRIBED IN PARTS LIST ONLY 。

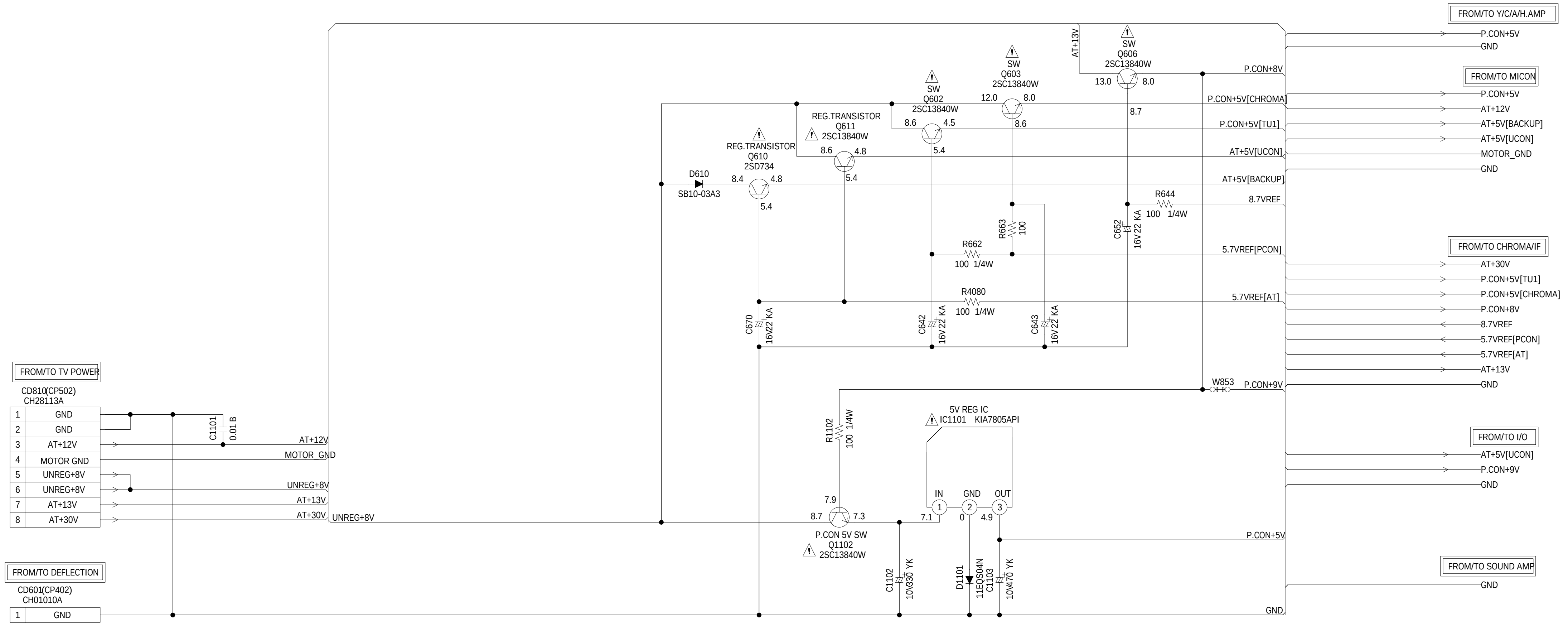
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

PCB010
VMX192

POWER SCHEMATIC DIAGRAM

(SYSCON PCB)


FROM/TO TV POWER
CD810(CP502)
CH28113A
1 GND
2 GND
3 AT+12V
4 MOTOR GND
5 UNREG+8V
6 UNREG+8V
7 AT+13V
8 AT+30V
C1101
0.01 B
AT+12V
MOTOR_GND
UNREG+8V
AT+13V
AT+30V
UNREG+8V
FROM/TO DEFLECTION
CD601(CP402)
CH01010A
1 GND
D610
SB10-03A3
REG.TRANSISTOR
Q610
2SD734
8.4
4.8
5.4
REG.TRANSISTOR
Q611
2SC13840W
8.6
4.8
5.4
SW
Q602
2SC13840W
8.6
4.5
5.4
SW
Q603
2SC13840W
12.0
8.0
8.6
AT+13V
SW
Q606
2SC13840W
13.0
8.0
8.7
R644
100 1/4W
R663
100
C652
16V 22 KA
R662
100 1/4W
R4080
100 1/4W
C670
16V22 KA
C642
16V 22 KA
C643
16V 22 KA
W853
R1102
100 1/4W
5V REG IC
IC1101 KIA7805API
IN
GND
OUT
1
2
3
7.9
8.7
7.3
7.1
0
4.9
P.CON 5V SW
Q1102
2SC13840W
C1102
10V330 YK
D1101
11EQS04N
C1103
10V470 YK
P.CON+8V
P.CON+5V[CHROMA]
P.CON+5V[TU1]
AT+5V[UCON]
AT+5V[BACKUP]
8.7VREF
5.7VREF[PCON]
5.7VREF[AT]
P.CON+9V
P.CON+5V
GND
FROM/TO Y/C/A/H.AMP
P.CON+5V
GND
FROM/TO MICON
P.CON+5V
AT+12V
AT+5V[BACKUP]
AT+5V[UCON]
MOTOR_GND
GND
FROM/TO CHROMA/IF
AT+30V
P.CON+5V[TU1]
P.CON+5V[CHROMA]
P.CON+8V
8.7VREF
5.7VREF[PCON]
5.7VREF[AT]
AT+13V
GND
FROM/TO I/O
AT+5V[UCON]
P.CON+9V
GND
FROM/TO SOUND AMP
GND

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

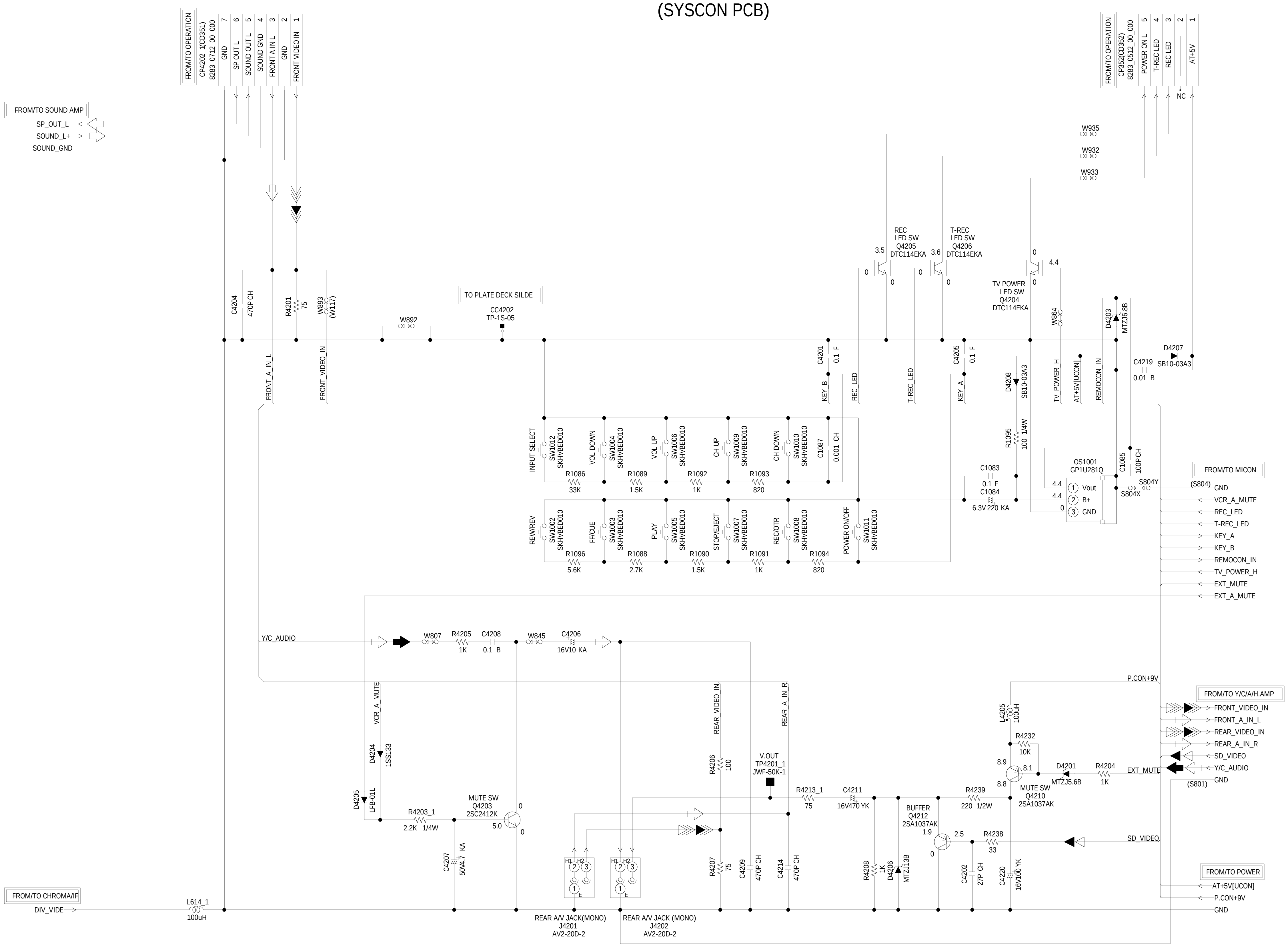
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE
CRITICAL FOR SAFETY,USE ONES
DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES。

PCB010
VMX192

IN/OUT SCHEMATIC DIAGRAM

(SYSCON PCB)



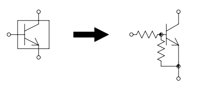
FROM/TO OPERATION
CP4202_1(CD351)
8283_0712_00_000
GND
SP OUT L
SOUND OUT L
SOUND GND
FRONT A IN L
GND
FRONT VIDEO IN
FROM/TO SOUND AMP
SP_OUT_L
SOUND_L+
SOUND_GND
FROM/TO OPERATION
CP352(CD352)
8283_0512_00_000
POWER ON L
T-REC LED
REC LED
AT+5V
NC
W935
W932
W933
REC LED SW Q4205 DTC114EKA
T-REC LED SW Q4206 DTC114EKA
TV POWER LED SW Q4204 DTC114EKA
W864
D4203 MTZJ6.8B
D4207 SB10-03A3
D4208 SB10-03A3
C4219 0.01 B
C4204 470P CH
R4201 75
W893 (W117)
W892
TO PLATE DECK SILDE
CC4202 TP-1S-05
C4201 0.1 F
C4205 0.1 F
FRONT_A_IN_L
FRONT_VIDEO_IN
KEY_B
REC_LED
T-REC_LED
KEY_A
TV_POWER_H
AT+5V[UCON]
REMOCON_IN
R1095 100 1/4W
INPUT SELECT SW1012 SKHVBED010
VOL DOWN SW1004 SKHVBED010
VOL UP SW1006 SKHVBED010
CH UP SW1009 SKHVBED010
CH DOWN SW1010 SKHVBED010
C1087 0.001 CH
R1086 33K
R1089 1.5K
R1092 1K
R1093 820
REW/REV SW1002 SKHVBED010
FF/CUE SW1003 SKHVBED010
PLAY SW1005 SKHVBED010
STOP/EJECT SW1007 SKHVBED010
REC/OTR SW1008 SKHVBED010
POWER ON/OFF SW1011 SKHVBED010
R1096 5.6K
R1088 2.7K
R1090 1.5K
R1091 1K
R1094 820
C1083 0.1 F
C1084 6.3V 220 KA
OS1001 GP1U281Q
Vout
B+
GND
C1085 100P CH
S804Y
S804X
(S804)
FROM/TO MICON
GND
VCR_A_MUTE
REC_LED
T-REC_LED
KEY_A
KEY_B
REMOCON_IN
TV_POWER_H
EXT_MUTE
EXT_A_MUTE
Y/C_AUDIO
W807
R4205 1K
C4208 0.1 B
W845
C4206 16V10 KA
VCR_A_MUTE
D4204 1SS133
D4205 LFB-01L
R4203_1 2.2K 1/4W
MUTE SW Q4203 2SC2412K
C4207 50V4.7 KA
REAR_VIDEO_IN
REAR_A_IN_R
R4206 100
V.OUT TP4201_1 JWF-50K-1
R4213_1 75
C4211 16V470 YK
R4207 75
C4209 470P CH
C4214 470P CH
R4208 1K
D4206 MTZJ13B
BUFFER Q4212 2SA1037AK
R4239 220 1/2W
R4238 33
C4202 27P CH
C4220 16V100 YK
P.CON+9V
L4205 100uH
R4232 10K
MUTE SW Q4210 2SA1037AK
D4201 MTZJ5.6B
R4204 1K
EXT_MUTE
SD_VIDEO
FROM/TO Y/C/A/H.AMP
FRONT_VIDEO_IN
FRONT_A_IN_L
REAR_VIDEO_IN
REAR_A_IN_R
SD_VIDEO
Y/C_AUDIO
GND
(S801)
FROM/TO POWER
AT+5V[UCON]
P.CON+9V
GND
REAR A/V JACK(MONO) J4201 AV2-20D-2
REAR A/V JACK (MONO) J4202 AV2-20D-2
FROM/TO CHROMA/IF
DIV_VIDE
L614_1 100uH

◀ PLAYBACK LUMINANCE SIGNAL
◁ PLAYBACK COLOR SIGNAL
◀◀ RECORD LUMINANCE SIGNAL
◁◁ RECORD COLOR SIGNAL
⇦ AUDIO SIGNAL(REC)
⬅ AUDIO SIGNAL(PB)

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

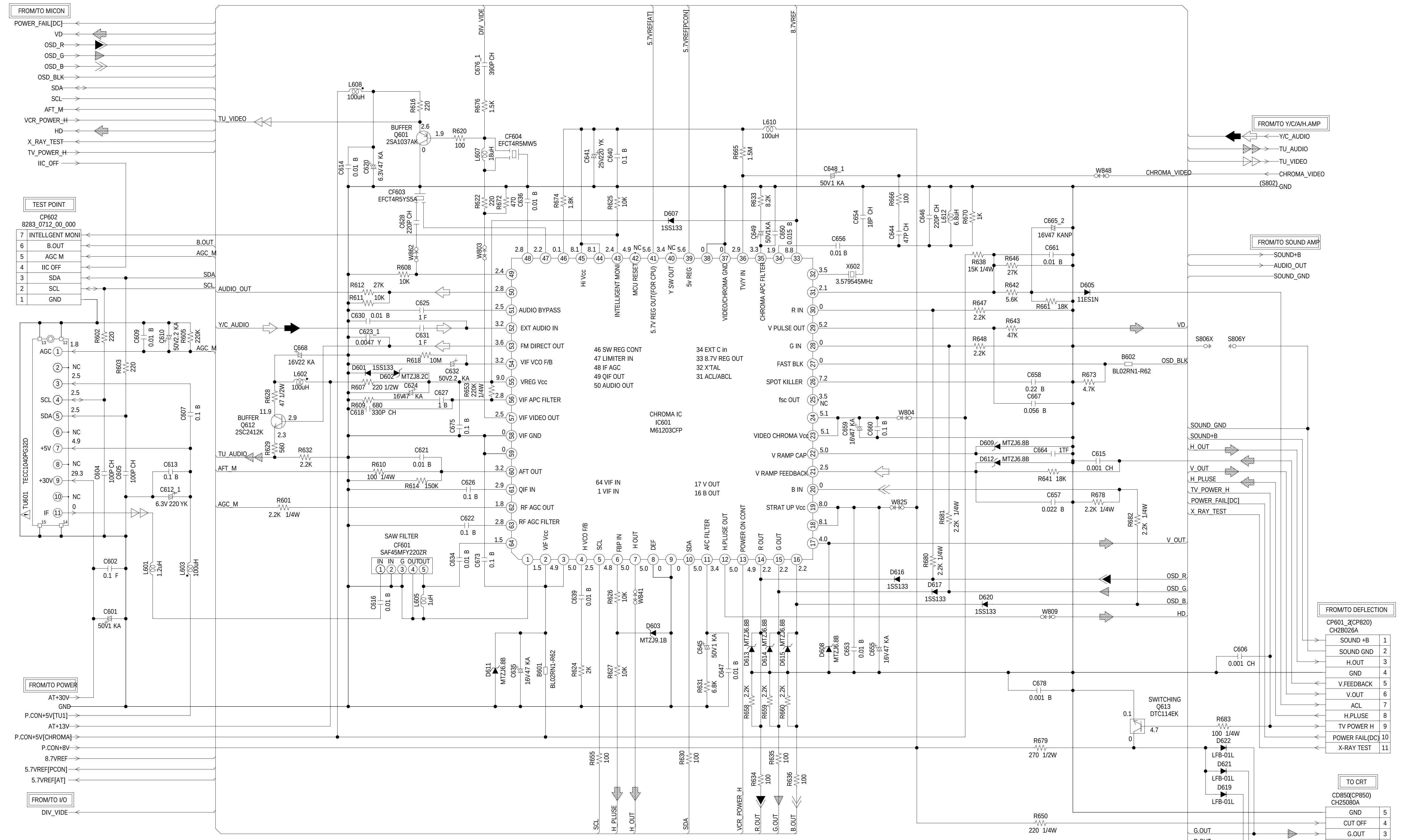
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION: DIGITAL TRANSISTOR



PCB010
VMX192

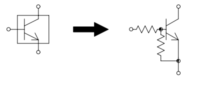
CHROMA/IF SCHEMATIC DIAGRAM (SYSCON PCB)


FROM/TO MICON
POWER_FAIL[DC]
VD
OSD_R
OSD_G
OSD_B
OSD_BLK
SDA
SCL
AFT_M
VCR_POWER_H
HD
X_RAY_TEST
TV_POWER_H
IIC_OFF
TEST POINT
CP602
8283_0712_00_000
7 INTELLGENT MONI
6 B.OUT
5 AGC M
4 IIC OFF
3 SDA
2 SCL
1 GND
TU601 TECC1040PG32D
AGC
NC
SCL
SDA
+5V
+30V
IF
TU_VIDEO
AUDIO_OUT
Y/C_AUDIO
TU_AUDIO
AFT_M
AGC_M
BUFFER Q601 2SA1037AK
BUFFER Q612 2SC2412K
CF603 EFCT4R5YS5A
CF604 EFCT4R5MW5
SAW FILTER CF601 SAF45MFY220ZR
CHROMA IC IC601 M61203CFP
DIV_VIDE
5.7VREF[AT]
5.7VREF[PCON]
8.7VREF
1 VIF IN
2 VIF Vcc
3 H VCO F/B
4 SCL
5 FBP IN
6 H OUT
7 DEF
9 SDA
11 AFC FILTER
12 H.PLUSE OUT
13 POWER ON CONT
14 R OUT
15 G OUT
16 B OUT
17 V OUT
19 STRAT UP Vcc
20 B IN
21 V RAMP FEEDBACK
22 V RAMP CAP
23 VIDEO CHROMA Vcc
25 fsc OUT
26 SPOT KILLER
27 FAST BLK
28 G IN
29 V PULSE OUT
30 R IN
31 ACL/ABCL
32 X'TAL
33 8.7V REG OUT
34 EXT C in
35 CHROMA APC FILTER
36 TV/Y IN
37 VIDEO/CHROMA GND
39 5v REG
40 Y SW OUT
41 5.7V REG OUT(FOR CPU)
42 MCU RESET
43 INTELLIGENT MONI
45 Hi Vcc
46 SW REG CONT
47 LIMITER IN
48 IF AGC
49 QIF OUT
50 AUDIO OUT
51 AUDIO BYPASS
52 EXT AUDIO IN
53 FM DIRECT OUT
54 VIF VCO F/B
55 VREG Vcc
56 VIF APC FILTER
57 VIF VIDEO OUT
58 VIF GND
60 AFT OUT
61 QIF IN
62 RF AGC OUT
63 RF AGC FILTER
64 VIF IN
X602 3.579545MHz
FROM/TO Y/C/A/H.AMP
Y/C_AUDIO
TU_AUDIO
TU_VIDEO
CHROMA_VIDEO
(S802) GND
FROM/TO SOUND AMP
SOUND+B
AUDIO_OUT
SOUND_GND
B602 BL02RN1-R62
S806X
S806Y
FROM/TO DEFLECTION
CP601_2(CP820) CH2B026A
1 SOUND +B
2 SOUND GND
3 H.OUT
4 GND
5 V.FEEDBACK
6 V.OUT
7 ACL
8 H.PLUSE
9 TV POWER H
10 POWER FAIL(DC)
11 X-RAY TEST
SWITCHING Q613 DTC114EK
TO CRT
CD850(CP850) CH25080A
5 GND
4 CUT OFF
3 G.OUT
2 R.OUT
1 B.OUT
L002 HF57T18.5*10*10
FROM/TO POWER
AT+30V
GND
P.CON+5V[TU1]
AT+13V
P.CON+5V[CHROMA]
P.CON+8V
8.7VREF
5.7VREF[PCON]
5.7VREF[AT]
FROM/TO I/O
DIV_VIDE
SCL
H_PLUSE
H_OUT
SDA
VCR_POWER_H
R_OUT
G_OUT
B_OUT

◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL
▨ DEFLECTION SIGNAL
◁ TUNER AUDIO SIGNAL
◁ TUNER VIDEO SIGNAL
⇦ AUDIO SIGNAL(REC)
⬅ AUDIO SIGNAL(PB)

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: DIGITAL TRANSISTOR



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

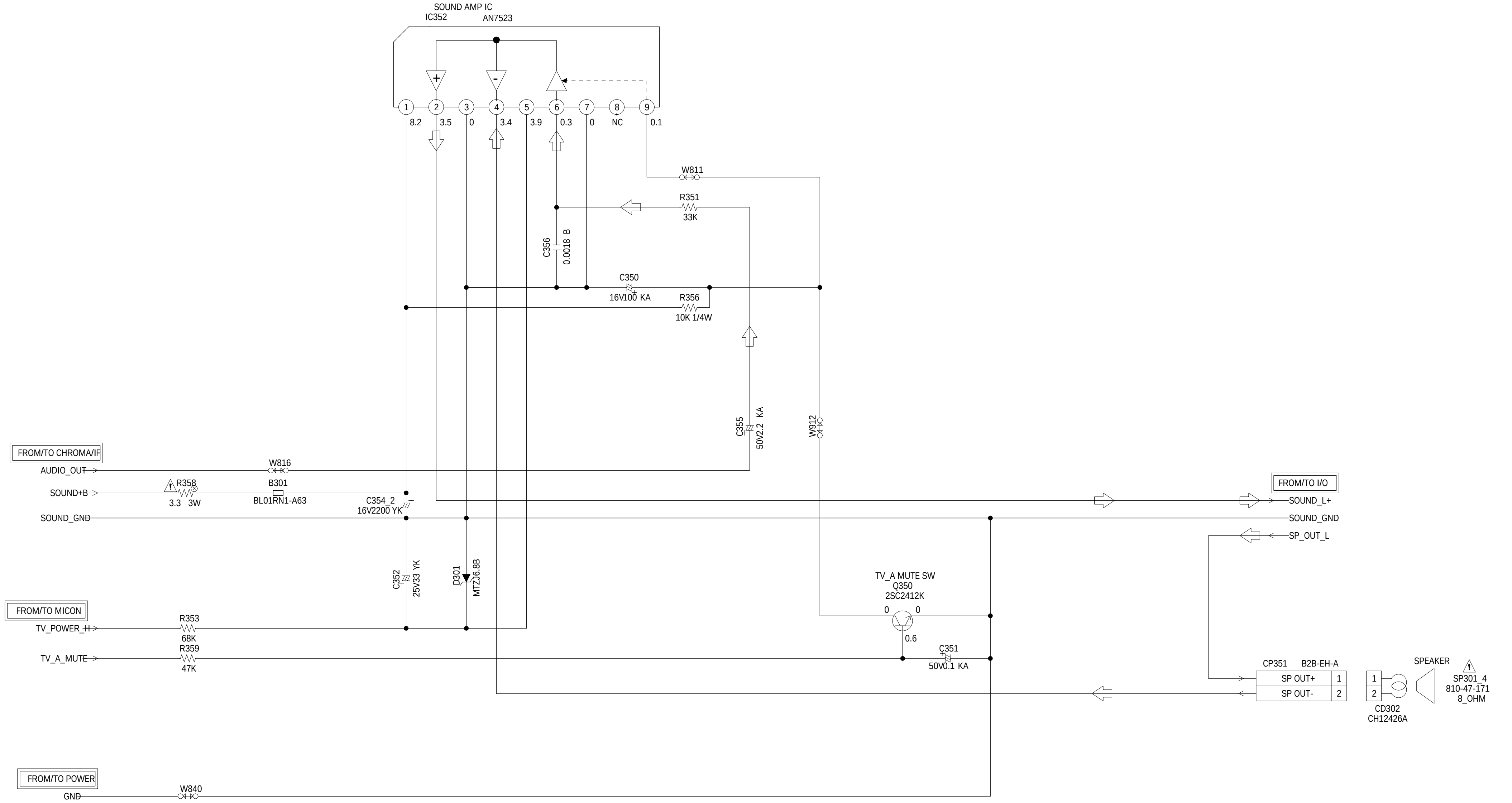
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

PCB010
VMX192

SOUND AMP SCHEMATIC DIAGRAM

(SYSCON PCB)


SOUND AMP IC
IC352
AN7523
+
-
1
2
3
4
5
6
7
8
9
8.2
3.5
0
3.4
3.9
0.3
0
NC
0.1
W811
R351
33K
C356
0.0018 B
C350
16V100 KA
R356
10K 1/4W
C355
50V2.2 KA
W912
FROM/TO CHROMA/IF
AUDIO_OUT
W816
SOUND+B
R358
3.3 3W
B301
BL01RN1-A63
C354_2
16V2200 YK
SOUND_GND
C352
25V33 YK
D301
MTZJ6.8B
FROM/TO MICON
TV_POWER_H
R353
68K
TV_A_MUTE
R359
47K
TV_A MUTE SW
Q350
2SC2412K
0
0
0.6
C351
50V0.1 KA
FROM/TO POWER
GND
W840
FROM/TO I/O
SOUND_L+
SOUND_GND
SP_OUT_L
CP351
B2B-EH-A
SP OUT+
SP OUT-
1
2
1
2
CD302
CH12426A
SPEAKER
SP301_4
810-47-171
8_OHM

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE
CRITICAL FOR SAFETY,USE ONES
DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES。

⇦ AUDIO SIGNAL

PCB010
VMX192

TV POWER SCHEMATIC DIAGRAM (MAIN PCB)

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE
5A 125V(F501) AND 10A 125V (ICP502).

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE
N'UTILISER QUE DES FUSIBLE DE MEME TYPE
5A 125V(F501) ET 10A 125V (ICP502).

CAUTION: ICP502 IS MANUFACTURED BYLITTELFUSE INC.,TYPE 251.

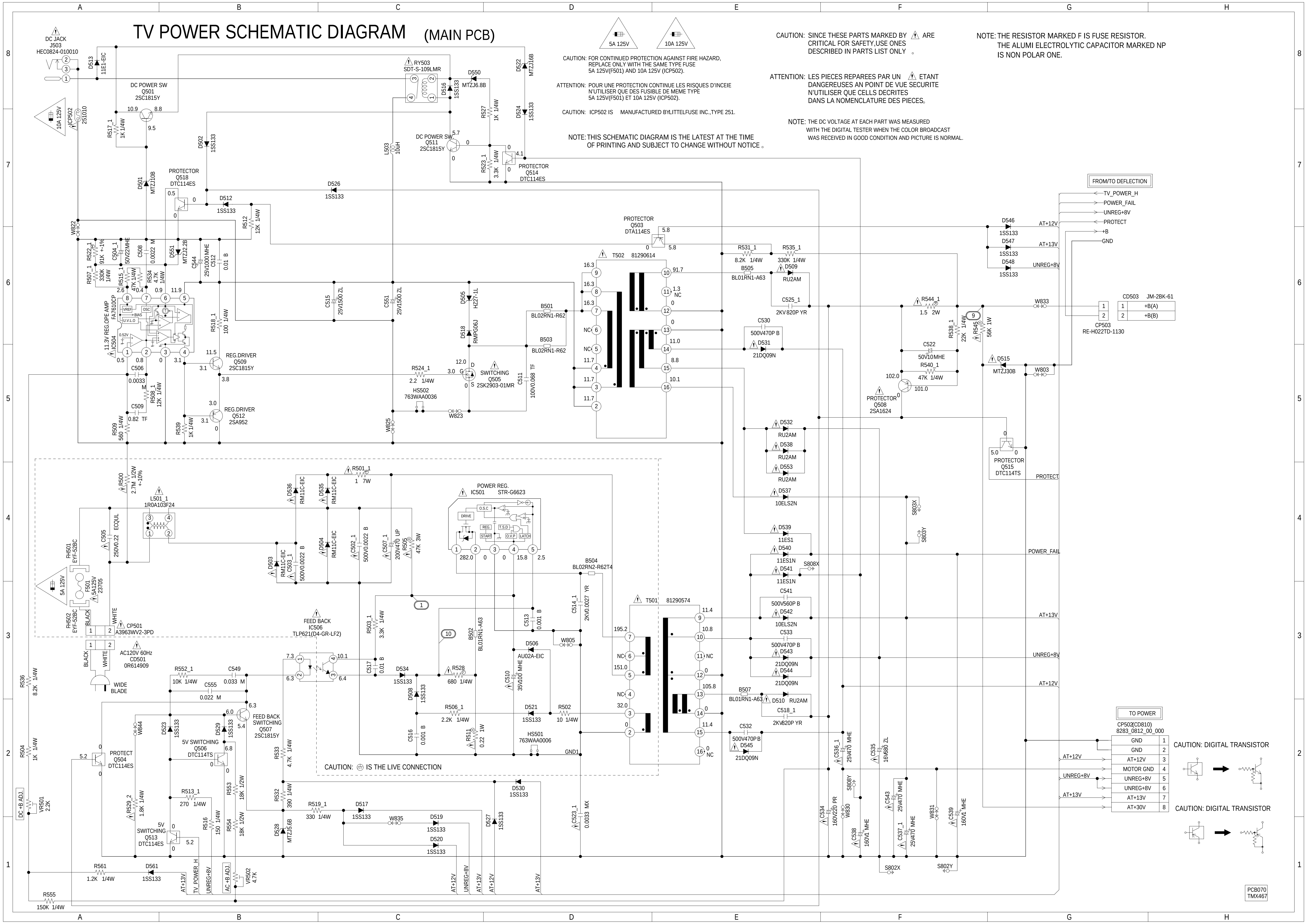
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE
CRITICAL FOR SAFETY,USE ONES
DESCRIBED IN PARTS LIST ONLY 。

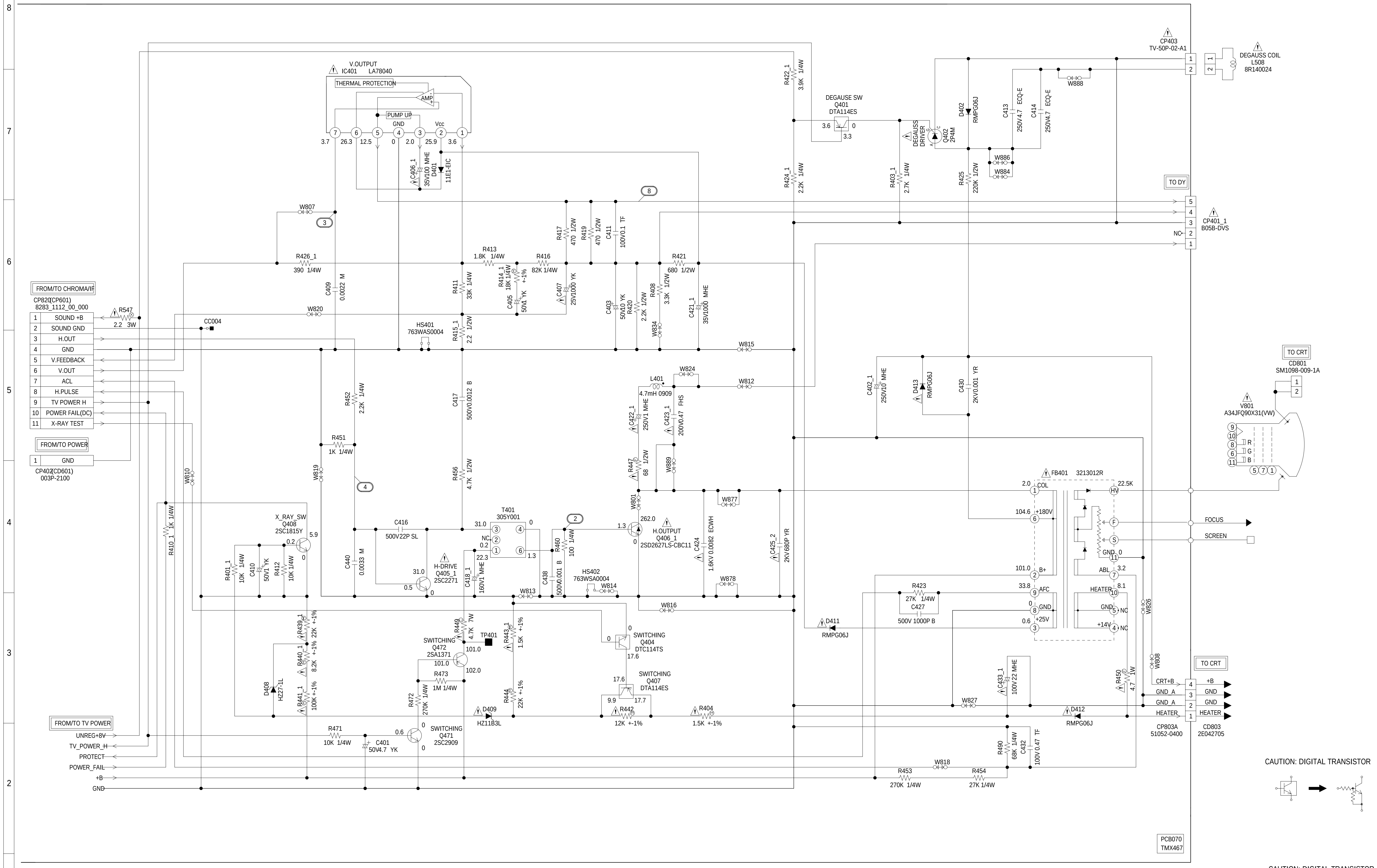
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

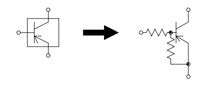
NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
5A 125V
10A 125V
DC JACK
J503
HEC0824-010010
D513
11E1-EIC
DC POWER SW
Q501
2SC1815Y
10.9
8.8
9.5
R517_1
1K 1/4W
10A 125V
ICP502
251010
RY503
SDT-S-109LMR
D550
MTZJ6.8B
D516
1SS133
D522
MTZJ16B
D524
1SS133
R527
1K 1/4W
DC POWER SW
Q511
2SC1815Y
5.7
0
4.1
R523_1
3.3K 1/4W
PROTECTOR
Q514
DTC114ES
L503
10uH
D502
1SS133
D501
MTZJ10B
PROTECTOR
Q518
DTC114ES
0.5
D512
1SS133
D526
1SS133
R512
12K 1/4W
W822
R522_1
91K +-1%
C504_1
50V22MHE
C508
0.0022 M
D551
MTZJ2.2B
C544
25V1000MHE
C512
0.01 B
R507_1
330K 1/4W
R515_1
47K 1/4W
R534
4.7K 1/4W
2.6
0.4
0.9
11.9
11.3V REG.OPE.AMP
FA7610CP
IC504
VREF
OSC
BIAS
U.V.L.O
0.52V
R518_1
100 1/4W
C515
25V1500 ZL
C551
25V1500 ZL
D505
HZ27-1L
D518
RMPG06J
B501
BL01RN1-R62
B503
BL01RN1-R62
0.5
0.8
0
3.1
11.5
C506
0.0033
REG.DRIVER
Q509
2SC1815Y
R508_1
12K 1/4W
C509
0.82 TF
R509
560 1/4W
R539
1K 1/4W
REG.DRIVER
Q512
2SA952
3.0
3.1
R524_1
2.2 1/4W
12.0
SWITCHING
Q505
2SK2903-01MR
C511
100V0.068 TF
HS502
763WAA0036
W823
W825
PROTECTOR
Q503
DTA114ES
5.8
T502
81290614
16.3
91.7
1.3
NC
11.0
8.8
10.1
11.7
R531_1
8.2K 1/4W
R535_1
330K 1/4W
B505
BL01RN1-A63
D509
RU2AM
C525_1
2KV820P YR
C530
500V470P B
D531
21DQ09N
R544_1
1.5 2W
R538_1
22K 1/4W
R545
56K 1W
C522
50V10MHE
R540_1
47K 1/4W
102.0
101.0
PROTECTOR
Q508
2SA1624
D515
MTZJ30B
W803
W833
FROM/TO DEFLECTION
TV_POWER_H
POWER_FAIL
UNREG+8V
PROTECT
+B
GND
D546
1SS133
AT+12V
D547
1SS133
AT+13V
D548
1SS133
UNREG+8V
CD503 JM-2BK-61
+B(A)
+B(B)
CP503
RE-H022TD-1130
D532
RU2AM
D538
RU2AM
D553
RU2AM
D537
10ELS2N
5.0
PROTECTOR
Q515
DTC114TS
S803X
S803Y
R500
2.7M 1/2W +-10%
L501_1
1R0A103F24
R501_1
1 7W
D536
RM11C-EIC
D535
RM11C-EIC
POWER REG.
IC501 STR-G6623
DRIVE
O.S.C
REG.
START
T.S.D
O.V.P
LATCH
282.0
15.8
2.5
C505
250V0.22 ECQUL
FH501
EYF-52BC
F501
5A125V
23705
FH502
EYF-52BC
BLACK
WHITE
CP501
A3963WV2-3PD
AC120V 60Hz
CD501
0R614909
WIDE
BLADE
D503
RM11C-EIC
C503_1
500V0.0022 B
D504
RM11C-EIC
C502_1
500V0.0022 B
C507_1
200V470 UP
R505
47K 3W
B504
BL02RN2-R62T4
C514_1
2KV0.0027 YR
R503_1
3.3K 1/4W
C513
0.001 B
B502
BL01RN1-A63
FEED BACK
IC506
TLP621(D4-GR-LF2)
7.3
10.1
6.3
6.4
C517
0.01 B
D534
1SS133
R528
680 1/4W
D506
AU02A-EIC
W805
C510
35V100 MHE
R552_1
10K 1/4W
C549
0.033 M
C555
0.022 M
D508
1SS133
R506_1
2.2K 1/4W
D521
1SS133
R502
10 1/4W
T501
81290574
11.4
195.2
10.8
151.0
105.8
32.0
S808X
C541
500V560P B
D542
10ELS2N
C533
500V470P B
D543
21DQ09N
D544
21DQ09N
B507
BL01RN1-A63
D510
RU2AM
C518_1
2KV820P YR
C532
500V470P B
D545
21DQ09N
D539
11ES1
D540
11ES1N
D541
11ES1N
POWER_FAIL
FEED BACK
SWITCHING
Q507
2SC1815Y
6.0
6.3
5.4
C516
0.001 B
R511
0.22 1W
HS501
763WA0006
GND1
W844
D523
1SS133
D529
1SS133
5V SWITCHING
Q506
DTC114TS
6.8
R533
4.7K 1/4W
PROTECT
Q504
DTC114ES
5.2
R529_2
1.8K 1/4W
R513_1
270 1/4W
R553
18K 1/2W
R554
18K 1/2W
5V
SWITCHING
Q513
DTC114ES
R516
150 1/4W
R532
390 1/4W
R519_1
330 1/4W
D517
1SS133
W835
D519
1SS133
D520
1SS133
D528
MTZJ5.6B
D530
1SS133
D527
1SS133
C523_1
0.0033 MX
CAUTION: ⊕ IS THE LIVE CONNECTION
R536
8.2K 1/4W
R504
1K 1/4W
VR501
2.2K
DC +B ADJ.
R561
1.2K 1/4W
D561
1SS133
R555
150K 1/4W
AT+13V
TV_POWER_H
UNREG+8V
AC +B ADJ.
VR502
4.7K
AT+12V
UNREG+8V
AT+13V
AT+12V
AT+13V
C534
160V220 PR
W830
C538
160V1 MHE
C536_1
25V470 MHE
S808Y
C535
16V680 ZL
C543
25V470 MHE
C537_1
25V470 MHE
W831
C539
160V1 MHE
S802X
S802Y
TO POWER
CP502(CD810)
8283_0812_00_000
GND
GND
AT+12V
MOTOR GND
UNREG+8V
UNREG+8V
AT+13V
AT+30V
CAUTION: DIGITAL TRANSISTOR
CAUTION: DIGITAL TRANSISTOR
PCB070
TMX467

DEFLECTION SCHEMATIC DIAGRAM (MIAN PCB)


V.OUTPUT
IC401 LA78040
THERMAL PROTECTION
AMP
PUMP UP
GND
Vcc
DEGAUSE SW
Q401
DTA114ES
DEGAUSS DRIVER
Q402 2P4M
D402 RMPG06J
C413 250V4.7 ECQ-E
C414 250V4.7 ECQ-E
W888
W886
W884
CP403
TV-50P-02-A1
DEGAUSS COIL
L508
8R140024
TO DY
CP401_1
B05B-DVS
NC
R422_1 3.9K 1/4W
R424_1 2.2K 1/4W
R403_1 2.7K 1/4W
R425 220K 1/2W
C406_1 35V100 MHE
D401 11E1-EIC
W807
R426_1 390 1/4W
R413 1.8K 1/4W
R416 82K 1/4W
R417 470 1/2W
R419 470 1/2W
C411 100V0.1 TF
R421 680 1/2W
R414_1 18K 1/4W +-1%
C405 50V1 YK
C407 25V1000 YK
C403 50V10 YK
R420 2.2K 1/2W
R408 3.3K 1/2W
C421_1 35V1000 MHE
W834
C409 0.0022 M
R411 33K 1/4W
R415_1 2.2 1/2W
HS401
763WAS0004
W815
FROM/TO CHROMA/IF
CP820(CP601)
8283_1112_00_000
R547 2.2 3W
CC004
W820
1 SOUND +B
2 SOUND GND
3 H.OUT
4 GND
5 V.FEEDBACK
6 V.OUT
7 ACL
8 H.PULSE
9 TV POWER H
10 POWER FAIL(DC)
11 X-RAY TEST
FROM/TO POWER
1 GND
CP402(CD601)
003P-2100
L401 4.7mH 0909
W824
W812
C422_1 250V1 MHE
C423_1 200V0.47 FHS
R447 68 1/2W
W889
R452 2.2K 1/4W
C417 500V0.0012 B
R451 1K 1/4W
W819
W810
R456 4.7K 1/2W
TO CRT
CD801
SM1098-009-1A
V801
A34JFQ90X31(VW)
R G B
C402_1 250V10 MHE
D413 RMPG06J
C430 2KV0.001 YR
FB401 3213012R
COL
HV 22.5K
+180V
F
S
FOCUS
SCREEN
GND
B+
ABL
AFC
HEATER
+25V
+14V
NC
W826
X_RAY_SW
Q408
2SC1815Y
R410_1 1K 1/4W
R401_1 10K 1/4W
C410 50V1 YK
R412 10K 1/4W
C416 500V22P SL
C440 0.0033 M
H-DRIVE
Q405_1
2SC2271
T401
305Y001
C418_1 160V1 MHE
C438 500V0.001 B
R460 100 1/4W
HS402
763WSA0004
W813
W814
H.OUTPUT
Q406_1
2SD2627LS-CBC11
C424 1.6KV 0.0082 ECWH
C425_2 2KV 680P YR
W877
W878
W816
R423 27K 1/4W
C427 500V 1000P B
D411 RMPG06J
R439_1 22K +-1%
R440_1 8.2K +-1%
D408 HZ27-1L
R441_1 100K +-1%
R449 4.7K 7W
TP401
SWITCHING
Q472
2SA1371
R473 1M 1/4W
R443_1 1.5K +-1%
R444 22K +-1%
R472 270K 1/4W
D409 HZ11B3L
SWITCHING
Q404
DTC114TS
SWITCHING
Q407
DTA114ES
R442 12K +-1%
R404 1.5K +-1%
C433_1 100V 22 MHE
W827
D412 RMPG06J
W808
R450 4.7 1W
TO CRT
CRT+B
GND_A
HEATER
+B
GND
CP803A
51052-0400
CD803
2E042705
FROM/TO TV POWER
UNREG+8V
TV_POWER_H
PROTECT
POWER_FAIL
+B
GND
R471 10K 1/4W
C401 50V4.7 YK
SWITCHING
Q471
2SC2909
R490 68K 1/4W
C432 100V 0.47 TF
W818
R453 270K 1/4W
R454 27K 1/4W
CAUTION: DIGITAL TRANSISTOR
PCB070
TMX467

CAUTION: DIGITAL TRANSISTOR



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

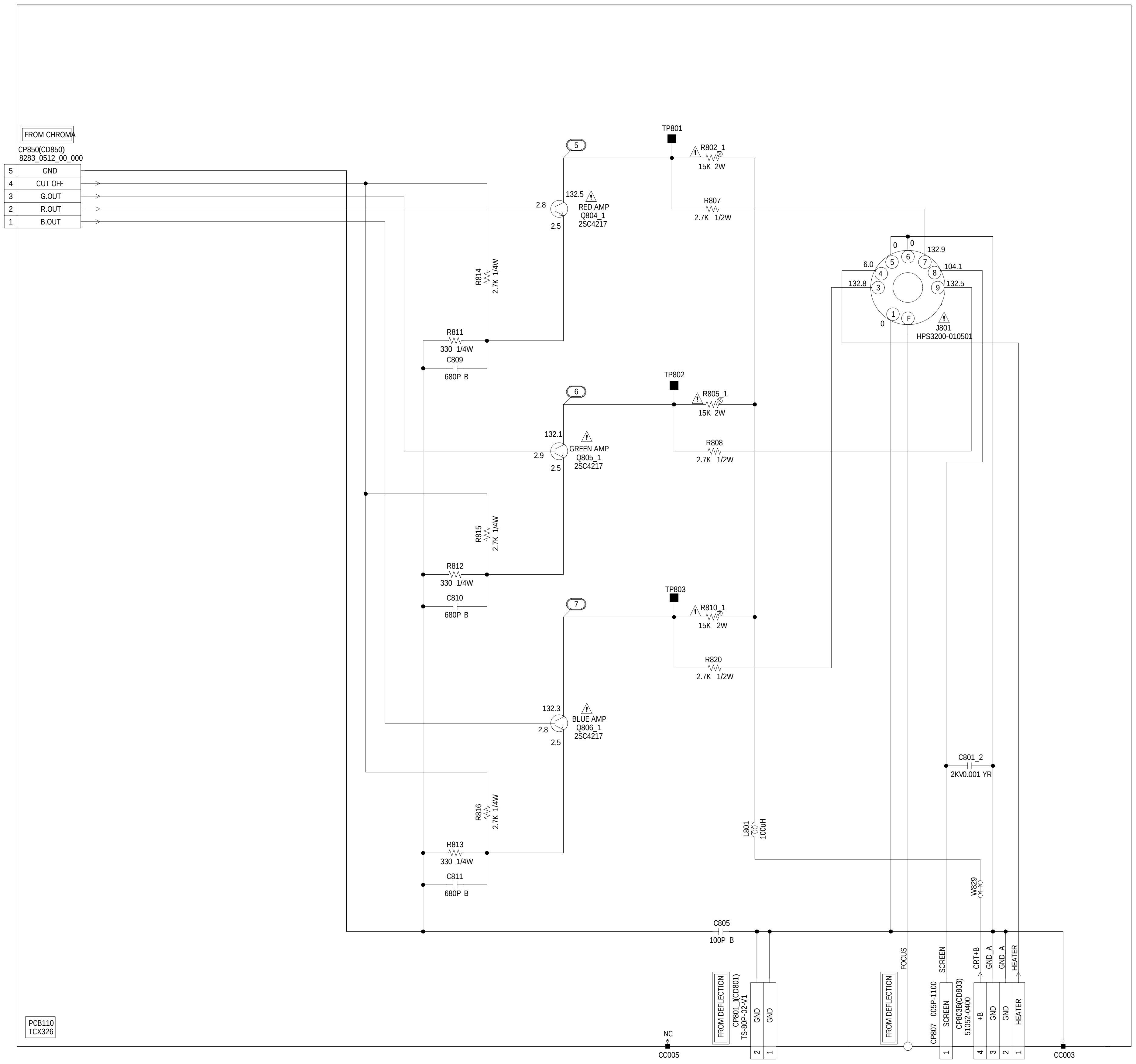
NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

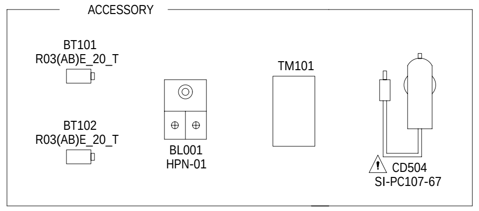
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE
CRITICAL FOR SAFETY,USE ONES
DESCRIBED IN PARTS LIST ONLY 。

CRT SCHEMATIC DIAGRAM (CRT PCB)


FROM CHROMA
CP850(CD850)
8283_0512_00_000
5 GND
4 CUT OFF
3 G.OUT
2 R.OUT
1 B.OUT
5
6
7
TP801
TP802
TP803
R802_1
15K 2W
R807
2.7K 1/2W
R805_1
15K 2W
R808
2.7K 1/2W
R810_1
15K 2W
R820
2.7K 1/2W
2.8
132.5
2.5
RED AMP
Q804_1
2SC4217
132.1
2.9
2.5
GREEN AMP
Q805_1
2SC4217
132.3
2.8
2.5
BLUE AMP
Q806_1
2SC4217
R814
2.7K 1/4W
R815
2.7K 1/4W
R816
2.7K 1/4W
R811
330 1/4W
C809
680P B
R812
330 1/4W
C810
680P B
R813
330 1/4W
C811
680P B
0
0
132.9
6.0
104.1
132.8
132.5
0
1 3 4 5 6 7 8 9 F
J801
HPS3200-010501
C801_2
2KV0.001 YR
L801
100uH
W829
C805
100P B
NC
CC005
CC003
FROM DEFLECTION
CP801_1(CD801)
TS-80P-02-V1
GND
GND
2
1
FROM DEFLECTION
FOCUS
SCREEN
CRT+B
GND_A
GND_A
HEATER
CP807 005P-1100
SCREEN
1
CP803B(CD803)
51052-0400
+B
GND
GND
HEATER
4
3
2
1
PCB110
TCX326


ACCESSORY
BT101
R03(AB)E_20_T
BT102
R03(AB)E_20_T
BL001
HPN-01
TM101
CD504
SI-PC107-67

	M545-E1P
TM101	VC-K9B

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

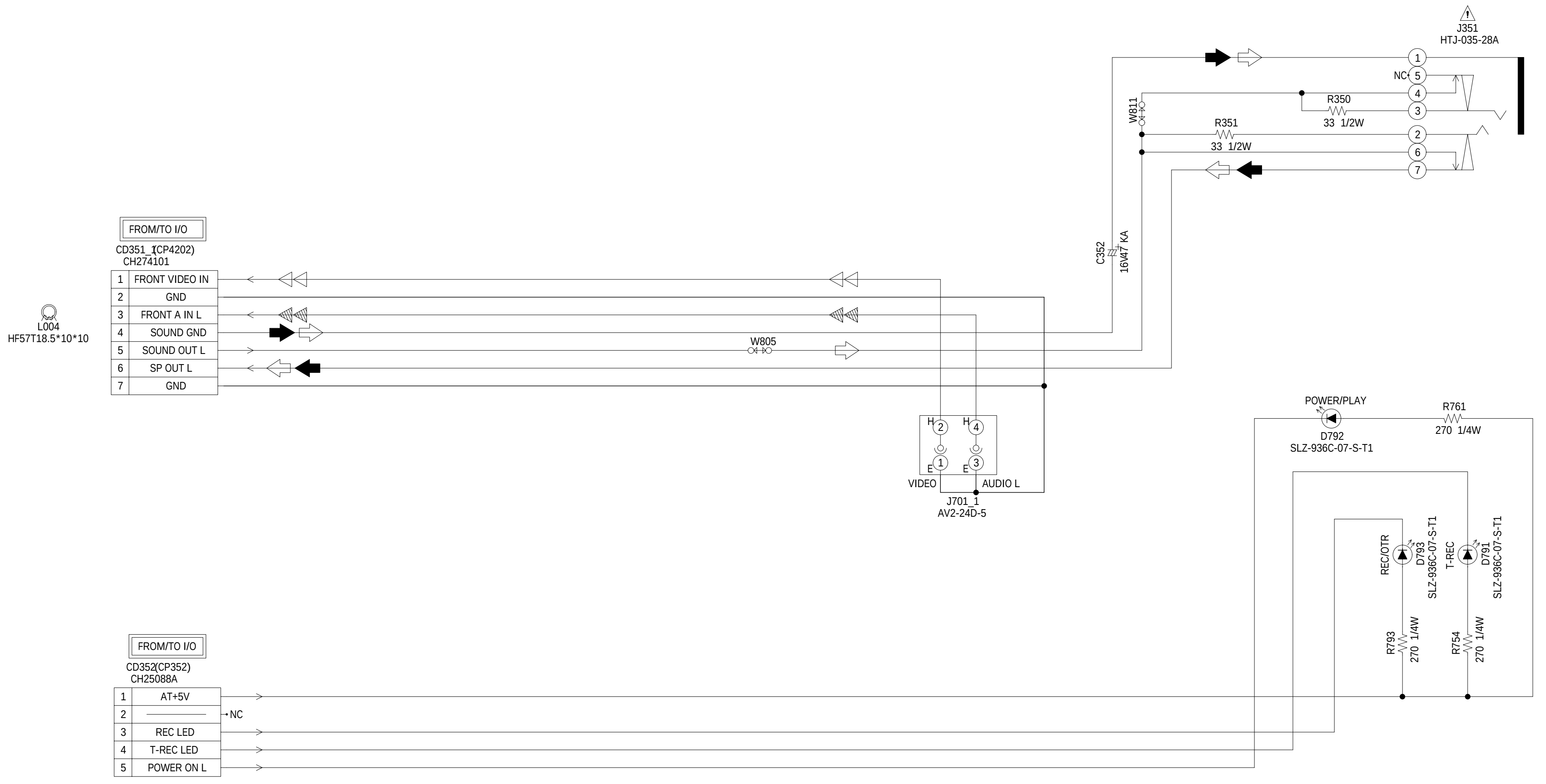
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

JACK/LED SCHEMATIC DIAGRAM

(OPERATION PCB)


J351
HTJ-035-28A
NC
R350
33 1/2W
R351
33 1/2W
W811
C352
16V47 KA
FROM/TO I/O
CD351_1(CP4202)
CH274101
1 FRONT VIDEO IN
2 GND
3 FRONT A IN L
4 SOUND GND
5 SOUND OUT L
6 SP OUT L
7 GND
L004
HF57T18.5*10*10
W805
H
E
VIDEO
AUDIO L
J701_1
AV2-24D-5
POWER/PLAY
D792
SLZ-936C-07-S-T1
R761
270 1/4W
REC/OTR
D793
SLZ-936C-07-S-T1
T-REC
D791
SLZ-936C-07-S-T1
R793
270 1/4W
R754
270 1/4W
FROM/TO I/O
CD352(CP352)
CH25088A
1 AT+5V
2 NC
3 REC LED
4 T-REC LED
5 POWER ON L

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED
WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST
WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE
CRITICAL FOR SAFETY,USE ONES
DESCRIBED IN PARTS LIST ONLY 。

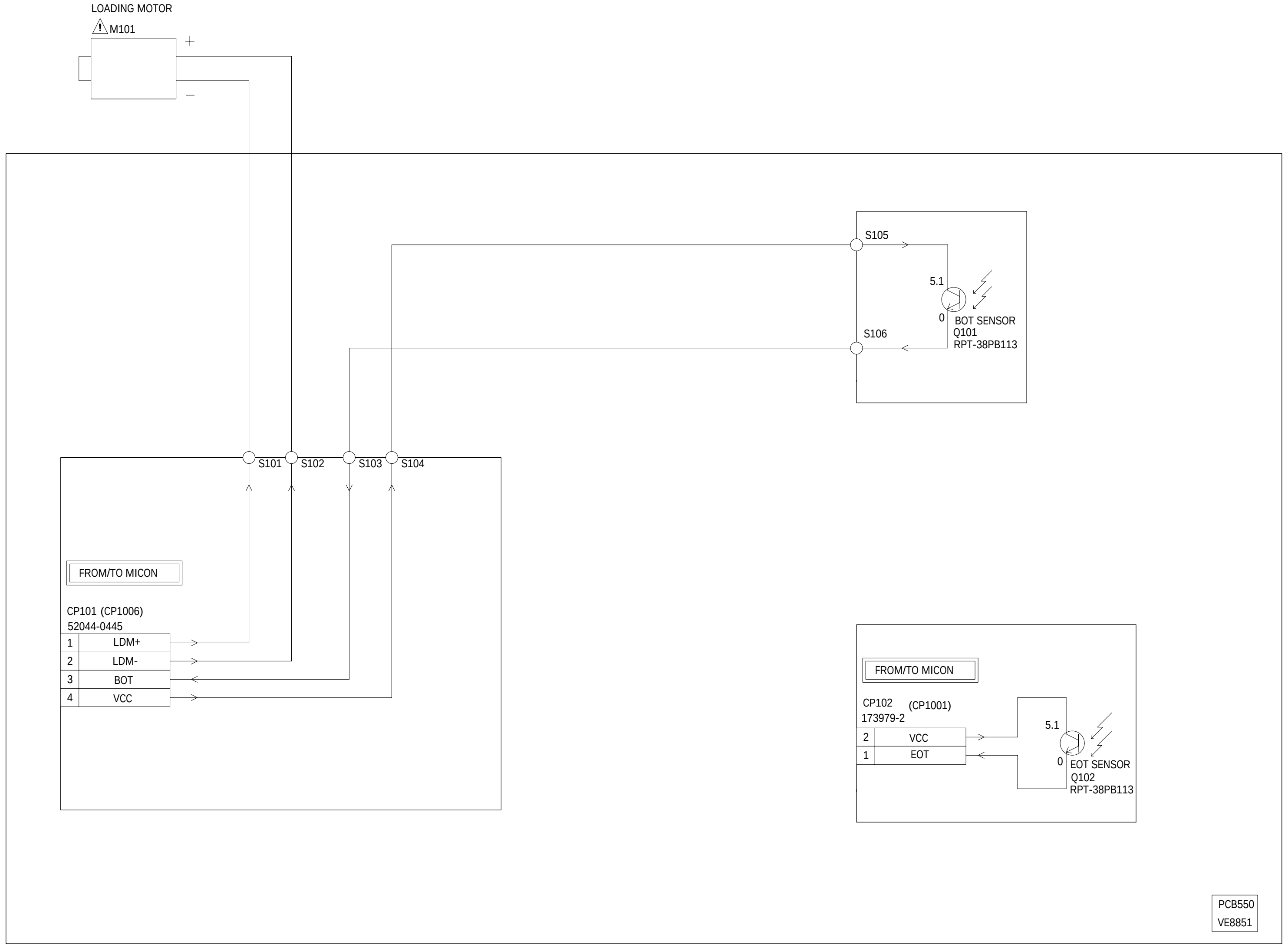
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES。

⇦ AUDIO SIGNAL(REC)
⬅ AUDIO SIGNAL(PB)
◁◁ TUNER VIDEO SIGNAL
◁◁ TUNER AUDIO SIGNAL

PCB030
TE9A16

DECK SCHEMATIC DIAGRAM

(DECK PCB)


LOADING MOTOR
⚠ M101
+
−
S101
S102
S103
S104
S105
5.1
0
BOT SENSOR
Q101
RPT-38PB113
S106
FROM/TO MICON
CP101 (CP1006)
52044-0445
1 LDM+
2 LDM-
3 BOT
4 VCC
FROM/TO MICON
CP102 (CP1001)
173979-2
2 VCC
1 EOT
5.1
0
EOT SENSOR
Q102
RPT-38PB113
PCB550
VE8851

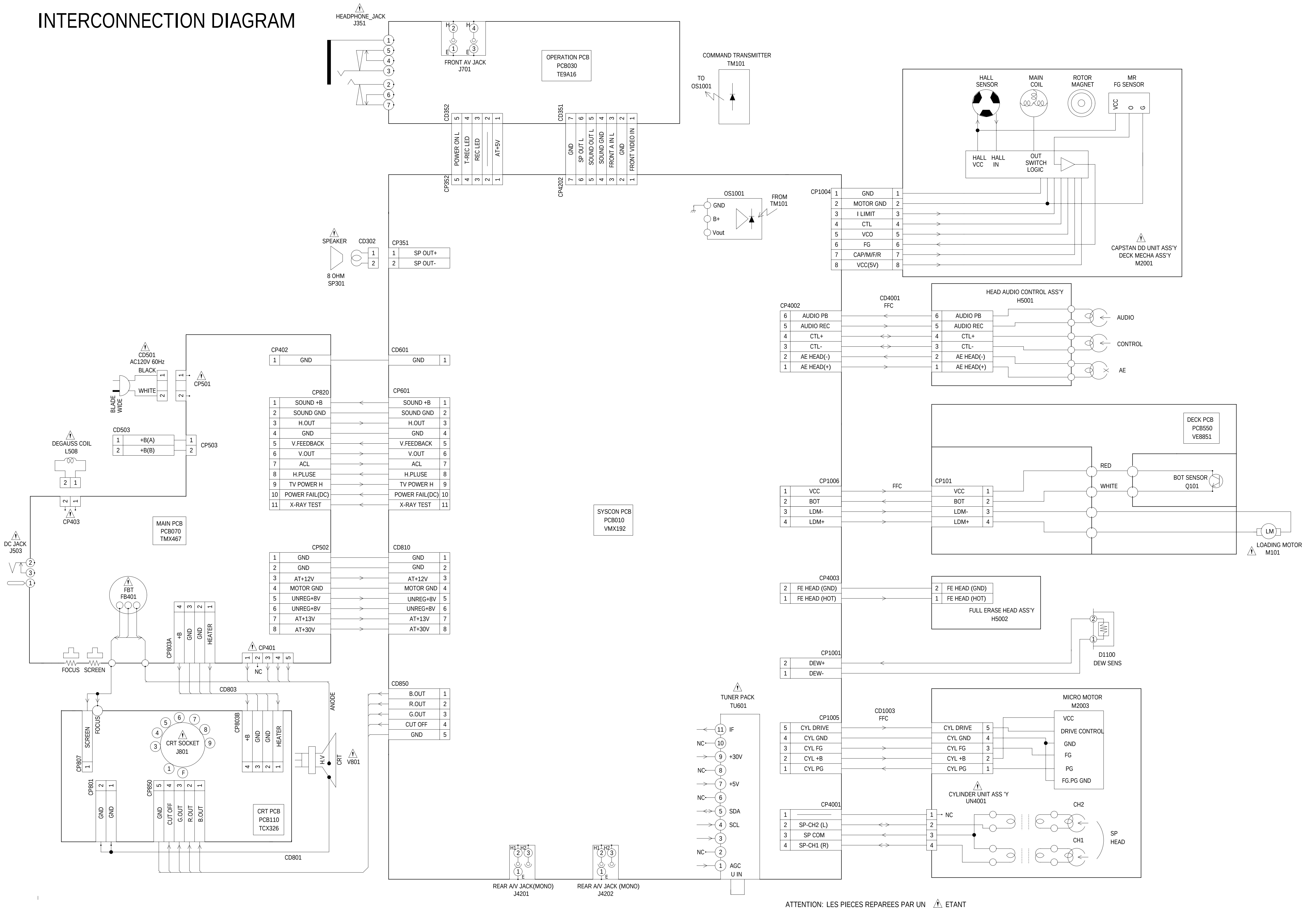
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE
CRITICAL FOR SAFETY,USE ONES
DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT
DANGEREUSES AN POINT DE VUE SECURITE
N'UTILISER QUE CELLS DECRITES
DANS LA NOMENCLATURE DES PIECES。

NOTE: THE DC VOLTAGE AT EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME
OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

INTERCONNECTION DIAGRAM


HEADPHONE_JACK J351
FRONT AV JACK J701
OPERATION PCB PCB030 TE9A16
CD352 CP352
POWER ON L
T-REC LED
REC LED
AT+5V
CD351 CP4202
GND
SP OUT L
SOUND OUT L
SOUND GND
FRONT A IN L
GND
FRONT VIDEO IN
COMMAND TRANSMITTER TM101
TO OS1001
OS1001
GND
B+
Vout
FROM TM101
HALL SENSOR
MAIN COIL
ROTOR MAGNET
MR FG SENSOR
VCC
HALL VCC
HALL IN
OUT SWITCH LOGIC
CP1004
GND
MOTOR GND
I LIMIT
CTL
VCO
FG
CAP/M/F/R
VCC(5V)
CAPSTAN DD UNIT ASS'Y DECK MECHA ASS'Y M2001
SPEAKER
CD302
8 OHM SP301
CP351
SP OUT+
SP OUT-
CP4002
CD4001 FFC
HEAD AUDIO CONTROL ASS'Y H5001
AUDIO PB
AUDIO REC
CTL+
CTL-
AE HEAD(-)
AE HEAD(+)
AUDIO
CONTROL
AE
CD501 AC120V 60Hz
BLACK
WHITE
BLADE WIDE
CP501
CP402
GND
CD601
CP820
CP601
SOUND +B
SOUND GND
H.OUT
GND
V.FEEDBACK
V.OUT
ACL
H.PLUSE
TV POWER H
POWER FAIL(DC)
X-RAY TEST
CD503
+B(A)
+B(B)
CP503
DEGAUSS COIL L508
CP403
DC JACK J503
MAIN PCB PCB070 TMX467
SYSCON PCB PCB010 VMX192
DECK PCB PCB550 VE8851
CP1006
FFC
CP101
VCC
BOT
LDM-
LDM+
RED
WHITE
BOT SENSOR Q101
LM
LOADING MOTOR M101
CP502
CD810
GND
AT+12V
MOTOR GND
UNREG+8V
AT+13V
AT+30V
CP4003
FE HEAD (GND)
FE HEAD (HOT)
FULL ERASE HEAD ASS'Y H5002
FBT FB401
CP803A
+B
GND
HEATER
CP401
NC
FOCUS
SCREEN
CD803
CP1001
DEW+
DEW-
D1100 DEW SENS
CD850
B.OUT
R.OUT
G.OUT
CUT OFF
ANODE
CRT
H.V
V801
TUNER PACK TU601
IF
+30V
+5V
SDA
SCL
AGC
U IN
NC
MICRO MOTOR M2003
CD1003 FFC
CP1005
CYL DRIVE
CYL GND
CYL FG
CYL +B
CYL PG
DRIVE CONTROL
FG
PG
FG.PG GND
CYLINDER UNIT ASS 'Y UN4001
CP4001
SP-CH2 (L)
SP COM
SP-CH1 (R)
CH2
CH1
SP HEAD
CP807
CRT SOCKET J801
CP803B
CP801
CP850
CRT PCB PCB110 TCX326
CD801
REAR A/V JACK(MONO) J4201
REAR A/V JACK (MONO) J4202

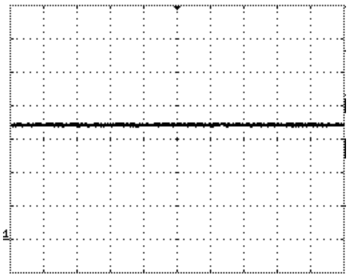
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

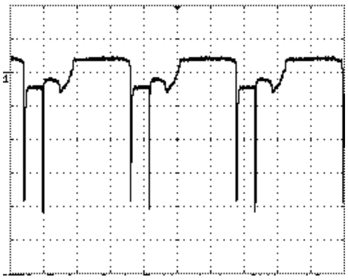
WAVEFORMS

TV POWER

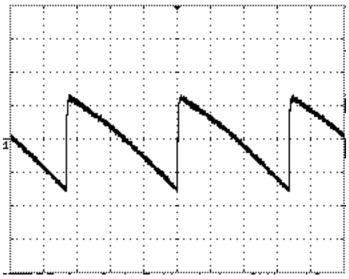


① 5.0V 2μs/div

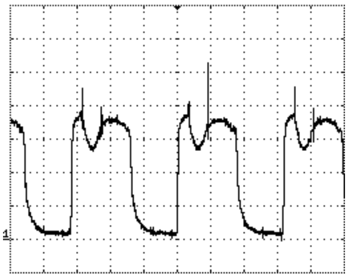
DEFLECTION



② 2.0V 20μs/div

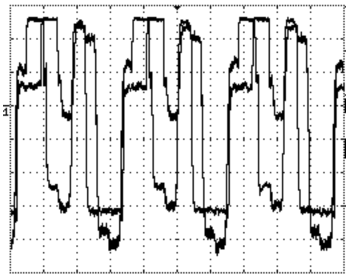


③ 500mV 5ms/div

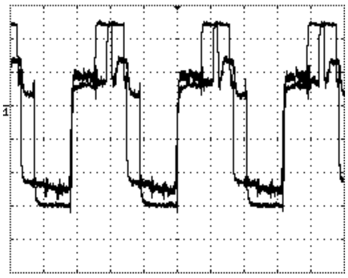


④ 200mV 20μs/div

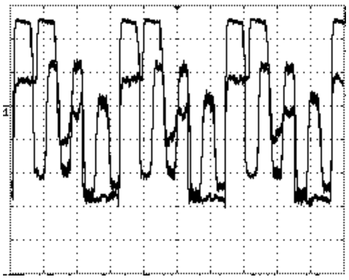
CRT



⑤ 10V 20μs/div

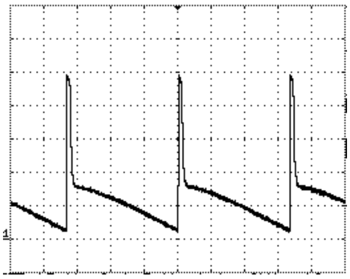


⑥ 10V 20μs/div



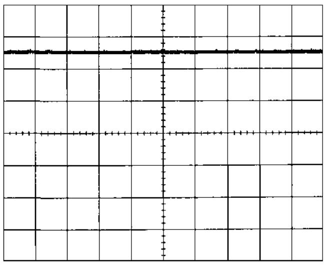
⑦ 10V 20μs/div

DEFLECTION

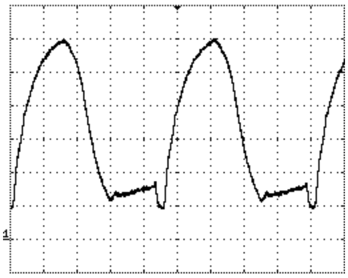


⑧ 10V 5ms/div

TV POWER

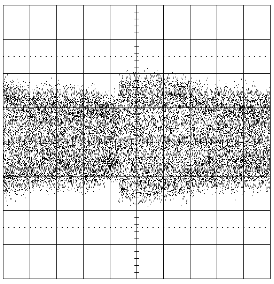


⑨ 20V 20μs/div

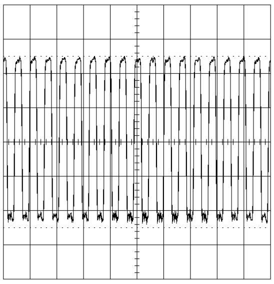


⑩ 500mV 2μs/div

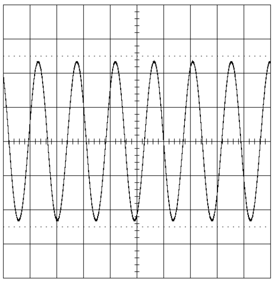
Y/C/AUDIO/HEAD AMP



⑪ PB
100mV 5ms/div

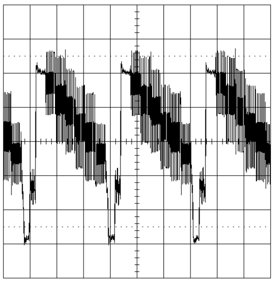


⑫ REC/PB
100mV 0.5μs/div

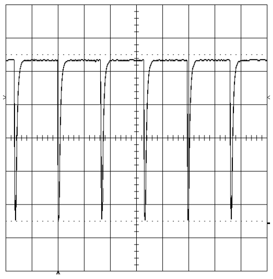


⑬ REC
20V 10μs/div

MICON



⑭ REC/PB
0.5V 20μs/div

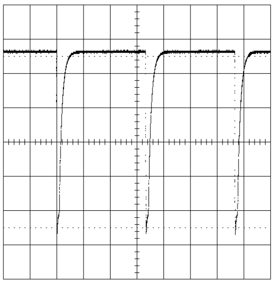


⑮ REC/PB
1V 10ms/div

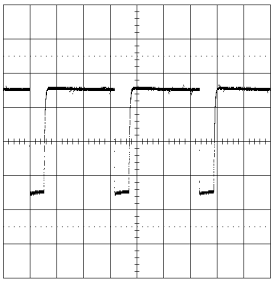
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

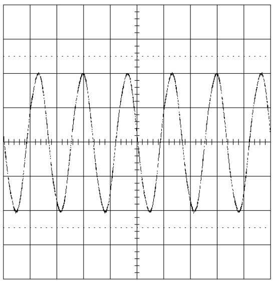
Y/C/AUDIO/HEAD AMP



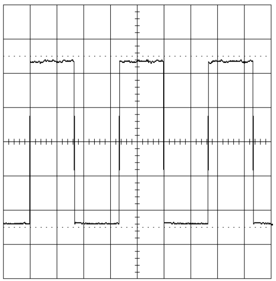
⑯ REC/PB
1V 5ms/div



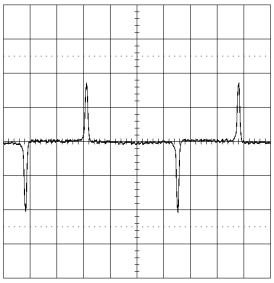
⑰ REC/PB
2V 20µs/div



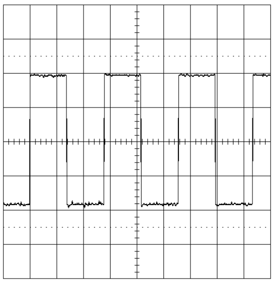
⑱ REC/PB
1V 50ns/div



⑲ REC/PB
1V 10ms/div



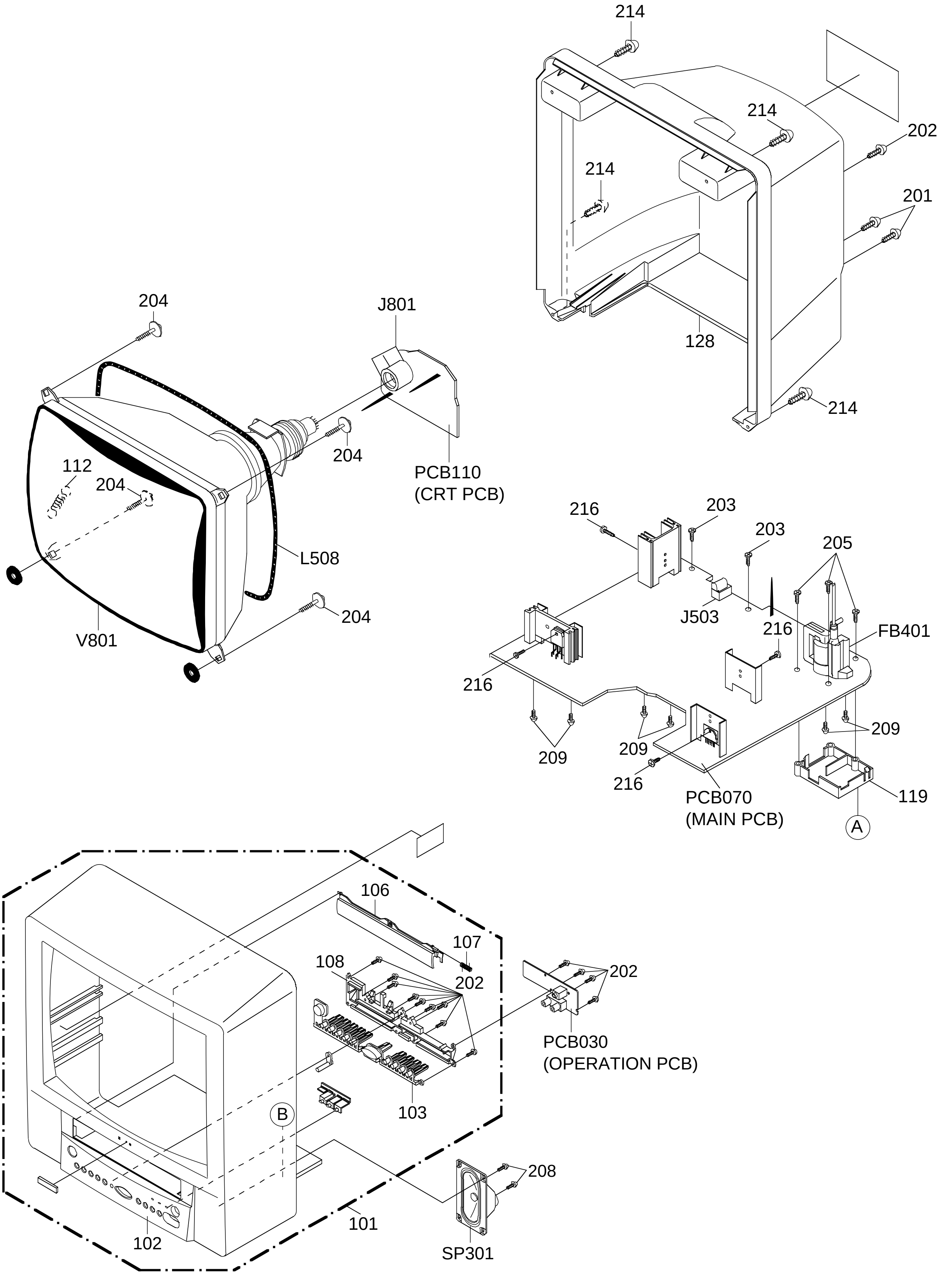
⑳ PB
1V 2ms/div



㉑ REC/PB
1V 0.5ms/div

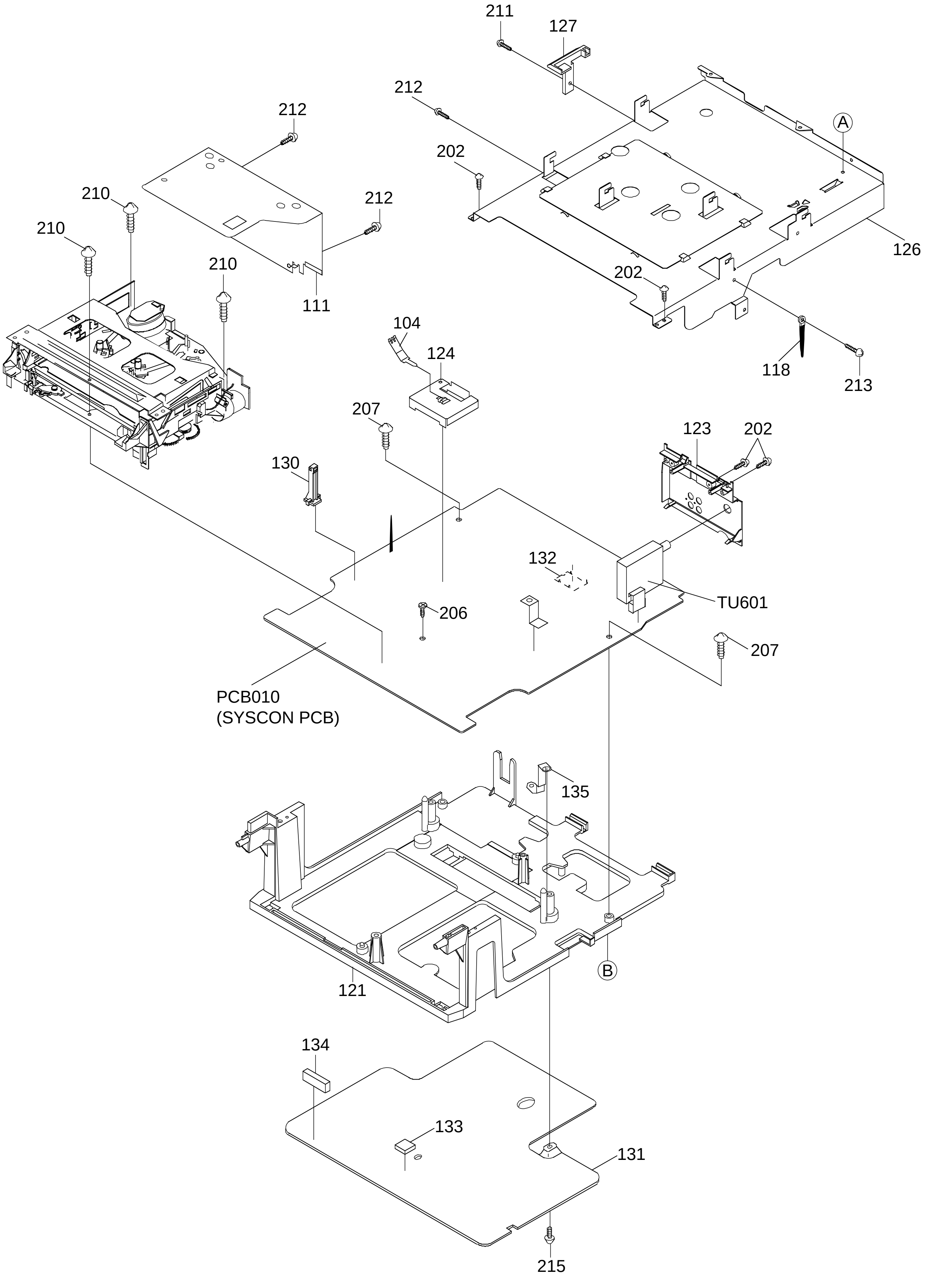
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW

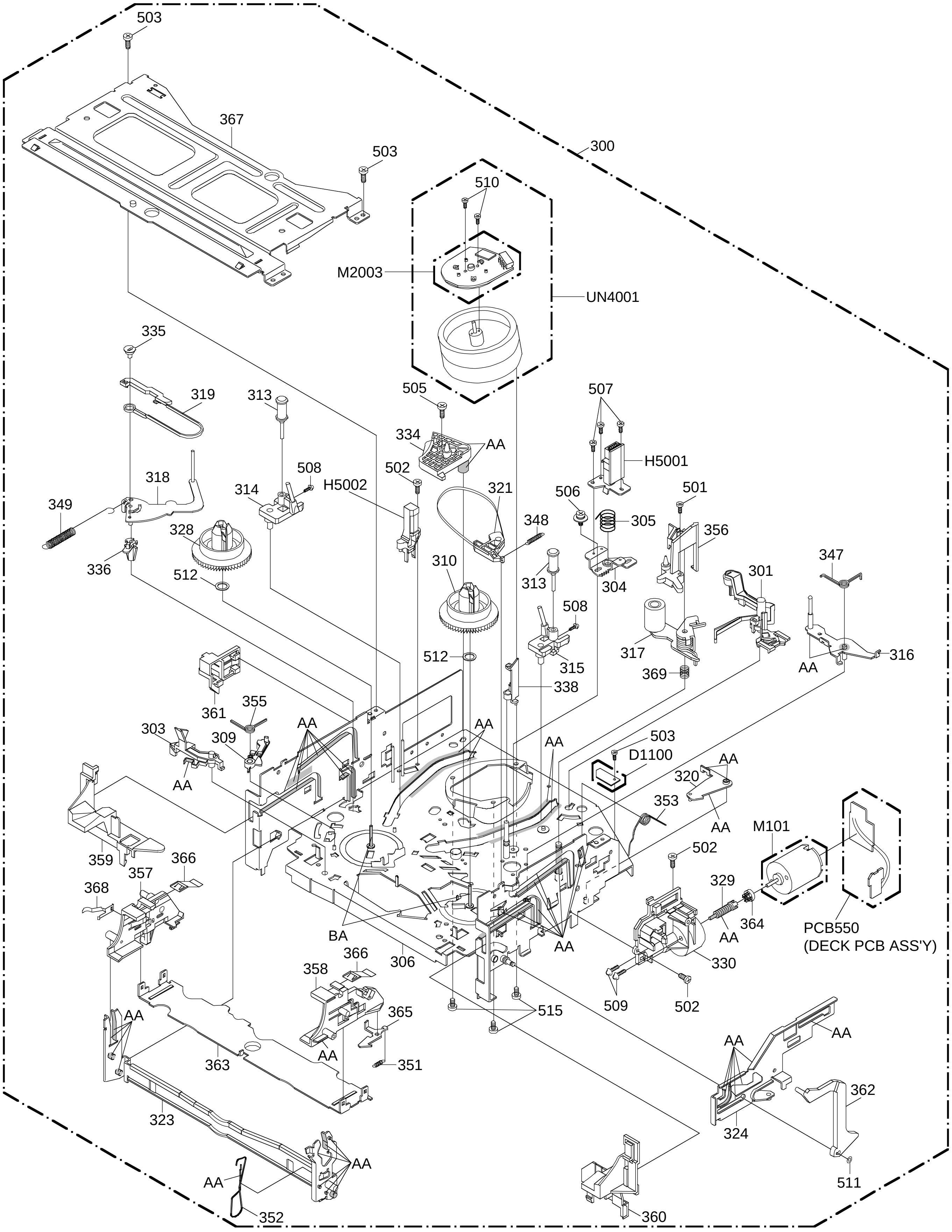


214
214
202
214
201
128
214
204
J801
112
204
204
PCB110
(CRT PCB)
L508
204
V801
216
203
203
205
J503
216
FB401
216
209
209
209
216
PCB070
(MAIN PCB)
119
A
106
107
108
202
202
PCB030
(OPERATION PCB)
103
B
208
101
102
SP301

MECHANICAL EXPLODED VIEW


211
127
212
212
A
202
210
212
126
210
210
202
111
104
124
118
213
207
123
202
130
132
TU601
206
207
PCB010
(SYSCON PCB)
135
B
121
134
133
131
215

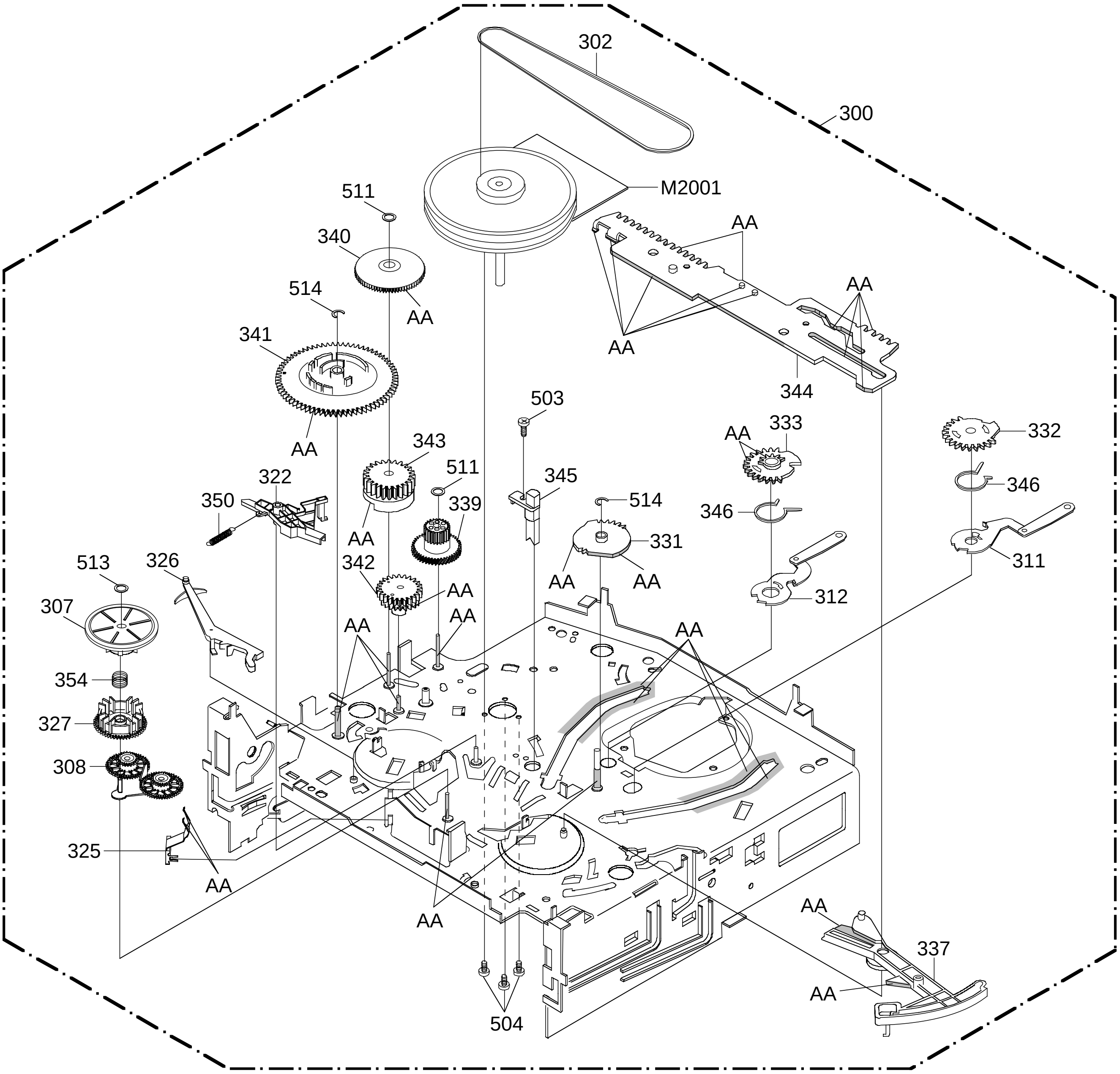
CHASSIS EXPLODED VIEW (TOP VIEW)


503
367
503
300
510
M2003
UN4001
335
319
313
505
507
334
AA
H5001
318
508
502
314
H5002
321
506
501
349
305
328
348
356
347
336
512
310
304
313
301
508
317
316
512
315
AA
369
338
361
355
AA
AA
503
303
309
AA
D1100
AA
AA
320
353
AA
M101
359
366
357
502
368
329
364
AA
PCB550
(DECK PCB ASS'Y)
BA
AA
366
306
330
358
509
502
515
365
AA
AA
AA
363
351
AA
362
323
324
AA
AA
511
352
360

CLASS	MARK
GREASE	AA
OIL	BA

NOTE: Applying positions AA and BA for the grease or oil are displayed for this section.
Check if the correct grease or oil is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)


302
300
M2001
511
AA
340
AA
514
AA
AA
341
344
503
AA
333
332
343
511
346
345
322
514
346
350
339
331
311
513
326
342
AA
AA
AA
AA
312
307
AA
AA
354
327
308
325
AA
AA
AA
337
AA
504

CLASS	MARK
GREASE	AA
OIL	BA

NOTE: Applying positions AA and BA for the grease or oil are displayed for this section.
Check if the correct grease or oil is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
101	BZ610137	A545E1P720	CABINET,FRONT ASSY	
102	BZ710142	701WPJ0916	CABINET,FRONT	
103	BZ710144	735WPJ0134	BUTTON,FRAME	
104	BZ710331	753WUAA006	SPRING,EARTH HEAD AMP	
106	BZ710334	712WPJ0725	FLAP	
107	BZ710010	743WKA0032	SPRING,FLAP	
108	BZ710008	738WPA0014	BUTTON,BASE	
111	BZ710283	752WSAA027	SHIELD,COVER DECK	
112	BZ710009	741WUA0019	SPRING,EARTH	
118	BZ710039	8995034000	CORD CLIP UL CO.	
119	BZ710293	761WPA0208	HOLDER,FBT	
121	BZ710338	761WPAA024	HOLDER,DECK	
123	BZ710280	771WPA0255	PLATE,JACK	
124	BZ710328	752WSA0209	SHIELD,CASE HEAD AMP	
126	BZ710335	752WSA0221	PLATE,DECK SHIELD ASS'Y	
127	BZ710012	761WPA0151	HOLDER,M/PCB	
128	BZ710336	702WPA0635	CABINET,BACK	
130	BZ710178	85OP700036	HOLDER,EOT SENSOR	
131	BZ710248	752WSAA028	SHIELD,BOTTOM	
132	BZ710282	752WSAA033	SHIELD,IC	
133	BZ710252	800WFA0038	CUSHION	10x10xT=2
134	BZ710251	800WFA0037	CUSHION	15x5xT=6
135	BZ710235	753WSA0120	PLATE,BOTTOM-EARTH	
201	BZ710032	8110630A24	SCREW,TAP TITE(P) BRAZIER	3x12
202	BZ710031	8110630A04	SCREW,TAP TITE(P) BRAZIER	3x10
203	BZ710337	8107930604	SCREW,CUP(S)	3x6
204	BZ710321	8121F50B84	SCREW,TAPPING(B0) GW20 FLAT	5x28
205	BZ710024	810A130B04	SCREW/WASHER(A)	M3x20
206	BZ710028	8110330804	SCREW,TAP TITE(P) FLAT	3x8
207	BZ710036	8117540B04	SCREW,TAPPING(B0) TRUSS	4x20
208	BZ710029	8110330A04	SCREW,TAP TITE(P) FLAT	3x10
209	BZ710019	8109630802	SCREW,TAP TITE(B) BRAZIER	3x8
210	BZ710034	8117140A24	SCREW,TAPPING(B0) PAN	4x12
211	BZ710018	8107630804	SCREW,TAP TITE(S) BRAZIER	3x8
212	BZ710017	8107226604	SCREW,TAP TITE(S) BIND	2.6x6
213	BZ710147	8107630604	SCREW,TAP TITE(S) BRAZIER	3x6
214	BZ710035	8117540A64	SCREW,TAPPING(B0) TRUSS	4x16
215	BZ710158	8110630604	SCREW,TAP TITE(P) BRAZIER	3x6
216	BZ710239	8109I30A04	SCREW,TAP TITE(B) WH7	3x10
---	BZ710305	792WHA0286	PACKAGE,TOP	
---	BZ710306	792WHA0287	PACKAGE,BOTTOM	
---	BZ710333	793WCD1323	GIFT BOX	
---	BZ614179	J545E101	INSTRUCTION BOOK	

CHASSIS REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
300	BZ610138	A545E1P420A	DECK ASSY	A545E1P420A
301	BZ710073	85OA500022	AHC ASS'Y	
302	BZ710193	85OP200290	BELT,CAPSTAN (S)	
303	BZ710132	85OP900710	LEVER,REC	
304	BZ710094	85OP500083	BASE,AC HEAD	
305	BZ710112	85OP800324	SPRING,AC HEAD	
306	BZ710194	85OA000367	MAIN CHASSIS ASS'Y (S-Z)	
307	BZ710195	85OA200082	CLUTCH ASS'Y(S2)	
308	BZ710196	85OA200080	ARM,IDLER ASS'Y (S)	
309	BZ710197	85OP600556	ARM,SS BRAKE (S)	
310	BZ710198	85OP200292	REEL,T (S)	
311	BZ710063	85OA300061	LOADING ARM S ASS'Y	
312	BZ710064	85OA300062	LOADING ARM T ASS'Y	
313	BZ614076	85OA400210	GUIDE ROLLER ASS'Y	
314	BZ710069	85OA400188	BASE,INCL S ASS'Y	
315	BZ710070	85OA400196	BASE,INCL T(S) ASS'Y	
316	BZ710200	85OA400199	P5-3 ARM ASS'Y(S)	
317	BZ710072	85OA400205	PINCH ROLLER BLOCK	
318	BZ710065	85OA400175	TENSION ARM ASS'Y	
319	BZ710201	85OA400184	TENSION BAND ASS'Y (S)	
320	BZ710067	85OA400178	PINCH ROLLER LEVER ASS'Y	
321	BZ710311	85OA600196	BRAKE T ASSY(S)	
322	BZ710203	85OA600191	CAP BRAKE ASS'Y(S)	
323	BZ710076	85OA900213	LINK ASS'Y	
324	BZ710077	85OA900216	LINK LEVER ASS'Y	
325	BZ710204	85OP200284	LEVER,CLUTCH (S)	
326	BZ710205	85OP200285	ACTUATOR,CLUTCH	
327	BZ710206	85OP200298	GEAR,COUPLING(S2)	
328	BZ710207	85OP200291	REEL,S (S)	
329	BZ710096	85OP600541	WORM	
330	BZ710105	85OP600563	BRACKET,MOTOR	
331	BZ710086	85OP300178	GEAR,MAIN LOADING	
332	BZ710087	85OP300179	GEAR,LOADING S	
333	BZ710088	85OP300180	GEAR,LOADING T	
334	BZ710208	85OP300187	HOLDER,LOADING GEAR (S-Z)	
335	BZ710090	85OP400472	ADJUST,TENSION	
336	BZ710093	85OP400492	HOLDER,TENSION	
337	BZ710092	85OP400490	LEVER,TENSION	
338	BZ710091	85OP400475	COVER,P4	
339	BZ710097	85OP600543	GEAR,JOINT	
340	BZ710098	85OP600544	GEAR,MIDDLE	
341	BZ710209	85OP600554	CAM,MAIN (S)	
342	BZ710101	85OP600546	CAM,P5	
343	BZ710172	85OP600565	CAM,PINCH ROLLER	
344	BZ710210	85OP600561	ROD,MAIN(S)	
345	BZ710106	85OP700035	REFLECTOR,LED	
346	BZ710107	85OP800318	SPRING,LOADING GEAR	
347	BZ710211	85OP800334	SPRING,P5 (S)	
348	BZ710212	85OP800335	SPRING,BRAKE T (S)	
349	BZ710110	85OP800322	SPRING,TENSION	
350	BZ710213	85OP800336	SPRING,CAP BRAKE (S)	
351	BZ710118	85OP800342	SPRING,LOCKER (S)	
352	BZ710113	85OP800326	SPRING,LINK	
353	BZ710114	85OP800328	SPRING,DAMPER	
354	BZ710115	85OP800330	SPRING,RING	
355	BZ710214	85OP800337	SPRING,SS BRAKE (S)	
356	BZ710119	85OP900680	OPENER,CASS	
357	BZ710312	85OP900731	CASS SIDE L	
358	BZ710313	85OP900732	CASS SIDE R	
359	BZ710314	85OP900728	TAPE GUIDE L(P,R)	
360	BZ710315	85OP900729	TAPE GUIDE R	
361	BZ710216	85OP900714	COVER,SENSOR L3	
362	BZ710123	85OP900688	LEVER,FLAP	
363	BZ710124	85OP900690	CASS HOLDER	
364	BZ710095	85OP600540	DRIVER,WORM	
365	BZ710217	85OP900713	LOCKER,R2	
366	BZ710127	85OP900694	SPRING,PACK	
367	BZ710128	85OP900695	BRACKET,TOP	
368	BZ710129	85OP900696	SPRING,CASS EARTH	
369	BZ710117	85OP800341	SPRING,P/R ARM	

CHASSIS REPLACEMENT PARTS LIST

	Location No.	TSB P/N	Reference No.	Description	
	501	BZ710048	8107126A04	SCREW,TAP TITE(S) PAN	2.6x10
	502	BZ710049	8107226804	SCREW,TAP TITE(S) BIND	2.6x8
	503	BZ710017	8107226604	SCREW,TAP TITE(S) BIND	2.6x6
	504	BZ710050	8109126604	SCREW,TAP TITE(B) PAN	2.6x6
	505	BZ710052	810A126804	SCREW/WASHER(A)	M2.6x8
	506	BZ710053	810B126404	SCREW/WASHER(B)	M2.6x4
	507	BZ710046	8102120604	SCREW,PAN	M2x6
	508	BZ710045	8102120304	SCREW,PAN	M2x3
	509	BZ710047	8102130304	SCREW,PAN	M3.0x3.0
	510	BZ710051	810A123504	SEMS A	M2.3x5.0
	511	BZ710055	82P266005N	POLYSLIDER WASHER(CUT)	2.6x6.0xT0.5
	512	BZ710218	82Q2647C5N	POLYSLIDER WASHER	2.6x4.7xT0.25
	513	BZ710054	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
	514	BZ710058	83ETW30000	E-RING	3.0
	515	BZ710219	810A126504	SCREW/WASHER(A)	M2.6x5
	CP101	BZ614040	069R740018	CONNECTOR PCB SIDE	52044-0445
	D1100	BZ410060	DAK0000170	DEW SENSORCW/AL,PLATE	HDP-05-26
	H5001	BZ710040	1523D91034	HEAD (AUDIO CONTROL)	HVMXA1072A
	H5002	BZ710041	1543D02013	HEAD (FULL ERASE)	HVFHP0032A
⚠	M101	BZ710044	1596P78001	MOTOR (LOADING)	MXN13FB11H
⚠	M2001	BZ710303	1510398032	CAPSTAN DD UNIT	F2QSB06
	M2003	BZ710042	1589V11007	MICRO MOTOR	EP14BD
	PCB550	BZ610139	A545C9P550	DECK PCB ASS'Y	VE8851
	Q101	BZ410026	0000700320	TRANSISTOR,PHOTO	RPT-38PB113
⚠	UN4001	BZ610089	A545A0A500	CYLINDER UNIT ASSY	A545A0A500

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference NO.	DESCRIPTION	
RESISTORS				
R358	BZ210111	R3X28B3R3J	R,METAL	3.3 OHM 3W
⚠ R404	BZ210112	R4X5T6152F	R,METAL	1.5K OHM 1/6W
⚠ R439	BZ210113	R4X5T6223F	R,METAL	22K OHM 1/6W
⚠ R440	BZ210090	R4X5T6822F	R,METAL	8.2K OHM 1/6W
⚠ R441	BZ210091	R4X5T6104F	R,METAL	100K OHM 1/6W
⚠ R442	BZ210114	R4X5T6123F	R,METAL	12K OHM 1/6W
⚠ R443	BZ210112	R4X5T6152F	R,METAL	1.5K OHM 1/6W
⚠ R447	BZ210021	R65582680J	R,FUSE	68 OHM 1/2W
⚠ R449	BZ210115	R5X2CE472J	R,CEMENT	4.7K OHM 7W
⚠ R450	BZ210116	R655814R7J	R,FUSE	4.7 OHM 1W
⚠ R500	BZ210001	R21202275K	R,SOLID	2.7M OHM 1/2W
⚠ R501	BZ210117	R5X2CE010J	R,CEMENT	1 OHM 7W
⚠ R505	BZ210012	R3X28B473J	R,METAL OXIDE	47K OHM 3W
⚠ R511	BZ210063	R3X181R22J	R,METAL	0.22 OHM 1W
R515	BZ210118	R002T4473J	RC	47K OHM 1/4W
⚠ R517	BZ210119	R002T4102J	RC	1K OHM 1/4W
R522	BZ210120	R425T6913F	R,METAL	91K OHM 1/6W
⚠ R528	BZ210086	R635U4681J	R,FUSE	680 OHM 1/4W
⚠ R529	BZ210121	R002T4182J	RC	1.8K OHM 1/4W
R534	BZ210122	R002T4472J	RC	4.7K OHM 1/4W
⚠ R544	BZ210097	R3X18A1R5J	R,METAL OXIDE	1.5 OHM 2W
⚠ R545	BZ210098	R3X181563J	R,METAL	56K OHM 1W
⚠ R547	BZ210123	R3X28B2R2J	R,METAL	2.2 OHM 3W
R561	BZ210124	R002T4122J	RC	1.2K OHM 1/4W
R653	BZ210125	R002T4224J	RC	220K OHM 1/4W
R678	BZ210126	R002T4222J	RC	2.2K OHM 1/4W
R681	BZ210127	R00104222J	RC	2.2K OHM 1/4W
⚠ R802	BZ210026	R3X18A153J	R,METAL OXIDE	15K OHM 2W
⚠ R805	BZ210026	R3X18A153J	R,METAL OXIDE	15K OHM 2W
⚠ R810	BZ210026	R3X18A153J	R,METAL OXIDE	15K OHM 2W
⚠ R1005	BZ210020	R615J12R7J	R,FUSE	2.7 OHM 1W
R1055	BZ210119	R002T4102J	RC	1K OHM 1/4W
R4081	BZ210118	R002T4473J	RC	47K OHM 1/4W
CAPACITORS				
C354	BZ110119	E02LF2222M	CE	2200 UF 16V
C401	BZ110120	E0EL054R7M	CE	4.7 UF 50V
C407	BZ110053	E02LF3102M	CE	1000 UF 25V
C413	BZ110085	P21503475K	CMP	4.7 UF 250V ECQ-E
C414	BZ110085	P21503475K	CMP	4.7 UF 250V ECQ-E
C419	BZ110122	C0JLYR7U2K	CC	680 PF 2KV YR
C421	BZ110055	E5EZF4102M	CE	1000 UF 35V
⚠ C422	BZ110121	E5EZTD010M	CE	1 UF 250V
⚠ C423	BZ110056	P447F2474J	CMPP	0.47 UF 200V FHS
⚠ C424	BZ110046	P414F9822H	CMPP	0.0082UF 1.6KV ECWH
⚠ C425	BZ110122	C0JLYR7U2K	CC	680 PF 2KV YR
C430	BZ110123	C0JLYR713K	CC	0.001 UF 2KV YR
⚠ C433	BZ110020	E5EZT8220M	CE	22 UF 100V
⚠ C502	BZ110088	C0JBB05H3K	CC	0.0022UF 500V B
⚠ C503	BZ110088	C0JBB05H3K	CC	0.0022UF 500V B
⚠ C505	BZ110025	P2122B224M	CMP	0.22 UF 250V ECQUL
⚠ C507	BZ110012	E51CGC471M	CE	470 UF 200V
⚠ C510	BZ110018	E5EZT4101M	CE	100 UF 35V
C514	BZ110113	C0JLYR7K3K	CC	0.0027UF 2KV YR
C515	BZ110091	E62FF3152M	CE	1500 UF 25V
C518	BZ110114	C0JLYR7W2K	CC	820 PF 2KV YR
⚠ C523	BZ110082	C034F0JL3M	CC	0.0033UF 125V MX
C525	BZ110114	C0JLYR7W2K	CC	820 PF 2KV YR
⚠ C534	BZ110013	E53VFB221M	CE	220 UF 160V
⚠ C535	BZ110108	E62FT2681M	CE	680 UF 16V
⚠ C536	BZ110029	E5EZT3471M	CE	470 UF 25V
⚠ C537	BZ110029	E5EZT3471M	CE	470 UF 25V
⚠ C538	BZ110109	E5EZTB010M	CE	1 UF 160V
⚠ C539	BZ110109	E5EZTB010M	CE	1 UF 160V
⚠ C543	BZ110029	E5EZT3471M	CE	470 UF 25V
C544	BZ110017	E5EZT3102M	CE	1000 UF 25V
C551	BZ110091	E62FF3152M	CE	1500 UF 25V
C678	BZ110098	CHGTB0413K	CC	0.001 UF 50V B
C801	BZ110123	C0JLYR713K	CC	0.001 UF 2KV YR
C1057	BZ110117	CQGTB04Q3K	CC	0.0047UF 50V B
C1067	BZ110117	CQGTB04Q3K	CC	0.0047UF 50V B
C1071	BZ110072	CHGTB04U2K	CC	680 PF 50V B
C1103	BZ110099	E02LT1471M	CE	470 UF 10V
DIODES				
D301	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D401	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
D402	BZ410014	D2LTPG06J0	DIODE,SILICON	RMPG06J-G3
⚠ D408	BZ410018	D94TA27011	DIODE,ZENER	HZ27-1L TD

ELECTRICAL REPLACEMENT PARTS LIST

DIODES

Location No.	TSB P/N	Reference NO.	DESCRIPTION	
⚠ D409	BZ410017	D94TA11B13	DIODE,ZENER	HZ11B3L TD
D411	BZ410014	D2LTPG06J0	DIODE,SILICON	RMPG06J-G3
⚠ D412	BZ410014	D2LTPG06J0	DIODE,SILICON	RMPG06J-G3
D413	BZ410014	D2LTPG06J0	DIODE,SILICON	RMPG06J-G3
D501	BZ410061	D97U01001B	DIODE,ZENER	MTZJ10B T-77
D502	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D503	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠ D504	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
D505	BZ410018	D94TA27011	DIODE,ZENER	HZ27-1L TD
D506	BZ410063	D2WTAU02A0	DIODE,SILICON	AU02A-EIC
D508	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D509	BZ410028	D2BTRU2AM0	DIODE,SILICON	RU2AM V1
⚠ D510	BZ410028	D2BTRU2AM0	DIODE,SILICON	RU2AM V1
D512	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D513	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
⚠ D515	BZ410019	D97U03001B	DIODE,ZENER	MTZJ30B T-77
D516	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D517	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D518	BZ410014	D2LTPG06J0	DIODE,SILICON	RMPG06J-G3
D519	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D520	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D521	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D522	BZ410065	D97U01601B	DIODE,ZENER	MTZJ16B T-77
D523	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D524	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D526	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D527	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D528	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D529	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D530	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D531	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
⚠ D532	BZ410028	D2BTRU2AM0	DIODE,SILICON	RU2AM V1
D534	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D535	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠ D536	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠ D537	BZ410011	D28TELS2N2	DIODE,RECTIFER	10ELS2N-TA1B2
⚠ D538	BZ410028	D2BTRU2AM0	DIODE,SILICON	RU2AM V1
⚠ D539	BZ410070	D28T011ES1	DIODE,SILICON	11ES1TA1
⚠ D540	BZ410025	D28T11ESN1	DIODE,SILICON	11ES1N-TA1B2
⚠ D541	BZ410025	D28T11ESN1	DIODE,SILICON	11ES1N-TA1B2
⚠ D542	BZ410011	D28TELS2N2	DIODE,RECTIFER	10ELS2N-TA1B2
⚠ D543	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
⚠ D544	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
⚠ D545	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
D546	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D547	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D548	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D550	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D551	BZ410067	D97U02R21B	DIODE,ZENER	MTZJ2.2B T-77
⚠ D553	BZ410028	D2BTRU2AM0	DIODE,SILICON	RU2AM V1
D561	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D601	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D602	BZ410053	D97U08R21C	DIODE,ZENER	MTZJ8.2C T-77
D603	BZ410023	D97U09R11B	DIODE,ZENER	MTZJ9.1B T-77
D605	BZ410025	D28T11ESN1	DIODE,SILICON	11ES1N-TA1B2
D607	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D608	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D609	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D610	BZ410008	D23U1003A3	DIODE,SCHOTTKY	SB10-03A3
D611	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D612	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D613	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D614	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D615	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D616	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D617	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D619	BZ410072	DD3RLFB01L	DIODE,SILICON	LFB-01L
D620	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D621	BZ410072	DD3RLFB01L	DIODE,SILICON	LFB-01L
D622	BZ410072	DD3RLFB01L	DIODE,SILICON	LFB-01L
D791	BZ410005	002132Q130	LED	SLZ-936C-07-S-T1
D792	BZ410005	002132Q130	LED	SLZ-936C-07-S-T1
D793	BZ410005	002132Q130	LED	SLZ-936C-07-S-T1
D1001	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
D1002	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D1003	BZ410004	0010600060	LED	SID1050CM
D1004	BZ410016	D92T1120B0	DIODE ZENER	RD12FB-T7

ELECTRICAL REPLACEMENT PARTS LIST

Location	No. TSB P/N	Reference NO.	DESCRIPTION	
			DIODES	
D1005	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
D1014	BZ410020	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
D1101	BZ410012	D28TQS04N0	DIODE,SCHOTTKY	11EQS04N-TA1B2
D4003	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D4004	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D4201	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D4203	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D4204	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D4205	BZ410072	DD3RLFB01L	DIODE,SILICON	LFB-01L
D4206	BZ410034	D97U01301B	DIODE,ZENER	MTZJ13B T-77
D4207	BZ410008	D23U1003A3	DIODE,SCHOTTKY	SB10-03A3
D4208	BZ410008	D23U1003A3	DIODE,SCHOTTKY	SB10-03A3
			ICS	
⚠ IC352	BZ611013	I0FSP75230	IC	AN7523
⚠ IC401	BZ611025	I03TD80400	IC	LA78040
⚠ IC501	BZ611041	I2BT066230	IC	STR-G6623
⚠ IC504	BZ611044	IDJD076100	IC	FA7610CP
⚠ IC506	BZ410040	0002500560	PHOTO COUPLER	TLP621(D4-GR-LF2)
IC601	BZ611037	I06FC1203C	IC	M61203CFP
IC1001	BZ611047	I56F57043C	IC	OEC7043C
IC1002	BZ611012	I9UJ0T600H	IC	PST600H
⚠ IC1003	BZ611018	I07SQ69550	IC	BA6955N
IC1099	BZ610140	A545E1P015	IC	S-24C02BDP-1A
⚠ IC1101	BZ611015	I1KA97805A	IC	KIA7805API
IC4001	BZ611023	I03F31067S	IC	LA71067SM-MPB
			TRANSISTORS	
Q350	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q401	BZ510051	TPYTB03001	COMPOUND TRANSISTOR	DTA114ESTP
⚠ Q402	BZ510052	TF2002P4M0	THYRISTOR	2P4M
Q404	BZ510024	TNYTJ03001	COMPOUND TRANSISTOR	DTC114TSTP
⚠ Q405	BZ510010	TC3T022710	TRANSISTOR,SILICON	2SC2271(D,E)-AE
⚠ Q406	BZ510036	TD30026270	TRANSISTOR,SILICON	2SD2627LS-CBC11
Q407	BZ510051	TPYTB03001	COMPOUND TRANSISTOR	DTA114ESTP
Q408	BZ510012	TC5T018154	TRANSISTOR,SILICON	2SC1815Y(TPE2)
Q471	BZ510011	TC3T029090	TRANSISTOR,SILICON	2SC2909(S,T)-AA
Q472	BZ510005	TA3T1371A0	TRANSISTOR,SILICON	2SA1371(D,E)-AE
⚠ Q501	BZ510012	TC5T018154	TRANSISTOR,SILICON	2SC1815Y(TPE2)
⚠ Q503	BZ510051	TPYTB03001	COMPOUND TRANSISTOR	DTA114ESTP
Q504	BZ510023	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
⚠ Q505	BZ510053	T410029030	FET	2SK2903-01MR
Q506	BZ510024	TNYTJ03001	COMPOUND TRANSISTOR	DTC114TSTP
Q507	BZ510012	TC5T018154	TRANSISTOR,SILICON	2SC1815Y(TPE2)
⚠ Q508	BZ510004	TA3T016240	TRANSISTOR,SILICON	2SA1624-AA
Q509	BZ510012	TC5T018154	TRANSISTOR,SILICON	2SC1815Y(TPE2)
Q511	BZ510012	TC5T018154	TRANSISTOR,SILICON	2SC1815Y(TPE2)
Q512	BZ510054	TAST009520	TRANSISTOR,SILICON	2SA952(C)-T(L,M)
Q513	BZ510023	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
Q514	BZ510023	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
Q515	BZ510024	TNYTJ03001	COMPOUND TRANSISTOR	DTC114TSTP
Q518	BZ510023	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
Q601	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
⚠ Q602	BZ510043	TC10013840	TRANSISTOR,SILICON	2SC13840W
⚠ Q603	BZ510043	TC10013840	TRANSISTOR,SILICON	2SC13840W
⚠ Q606	BZ510043	TC10013840	TRANSISTOR,SILICON	2SC13840W
⚠ Q610	BZ510031	TD3T007340	TRANSISTOR,SILICON	2SD734(E,F)-AA
⚠ Q611	BZ510043	TC10013840	TRANSISTOR,SILICON	2SC13840W
Q612	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q613	BZ510039	TNYTB05001	COMPOUND TRANSISTOR	DTC114EKT147
Q804	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
Q805	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
Q806	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
Q1001	BZ410049	0002700590	PHOTO COUPLER	RPI-301
Q1002	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q1003	BZ410071	0002M00610	PHOTO COUPLER	SG-276
Q1004	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q1005	BZ410049	0002700590	PHOTO COUPLER	RPI-301
Q1009	BZ410071	0002M00610	PHOTO COUPLER	SG-276
Q1013	BZ410042	0000100380	PHOTO TRANSISTOR	PNA2604M010R
Q1024	BZ510019	TNYJA05001	COMPOUND TRANSISTOR	DTC143EKAT146
⚠ Q1102	BZ510043	TC10013840	TRANSISTOR,SILICON	2SC13840W
Q4001	BZ510033	TC3T033310	TRANSISTOR,SILICON	2SC3331(S,T,U)-A
Q4002	BZ510033	TC3T033310	TRANSISTOR,SILICON	2SC3331(S,T,U)-A
Q4003	BZ510047	TPYTC03001	COMPOUND TRANSISTOR	DTA124ESTP
Q4005	BZ510003	TA3T013180	TRANSISTOR,SILICON	2SA1318(S,T)-AA
Q4006	BZ510031	TD3T007340	TRANSISTOR,SILICON	2SD734(E,F)-AA
Q4007	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4008	BZ510002	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S

ELECTRICAL REPLACEMENT PARTS LIST

TRANSISTORS

Location No.	TSB P/N	Reference NO.	DESCRIPTION	
Q4009	BZ510048	T6YA1037K0	TRANSISTOR,SILICON	2SA1037KT147(R,S)
Q4010	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4203	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4204	BZ510020	TNYJB05001	COMPOUMD TRANSISTOR	DTC114EKAT146
Q4205	BZ510020	TNYJB05001	COMPOUMD TRANSISTOR	DTC114EKAT146
Q4206	BZ510020	TNYJB05001	COMPOUMD TRANSISTOR	DTC114EKAT146
Q4210	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4212	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S

COILS &TRANSFORMERS

Location No.	TSB P/N	Reference NO.	DESCRIPTION	
L002	BZ310022	02A6A8A0A1	CORE,FERRITE	HF57T18.5*10*10
L004	BZ310022	02A6A8A0A1	CORE,FERRITE	HF57T18.5*10*10
L401	BZ310004	021679472K	COIL	4.7 MH
⚠ L501	BZ310099	029T000092	COIL,LINE FILTER	1R0A103F24
L503	BZ310083	021767100K	COIL	A 10 UH
⚠ L508	BZ310100	028R140024	COIL,DEGAUSS	8R140024
L601	BZ310101	0216A61R2K	COIL	1.2 UH
L602	BZ310001	021673101J	COIL	100 UH
L603	BZ310002	021673101K	COIL	100 UH
L605	BZ310111	0216S11R0J	COIL	1 UH
L607	BZ310067	021LA6180K	COIL	18 UH
L608	BZ310002	021673101K	COIL	100 UH
L610	BZ310005	02167D101K	COIL	100 UH
L612	BZ310068	021LA66R8K	COIL	6.8 UH
L614	BZ310042	021LA6101K	COIL	100 UH
L801	BZ310002	021673101K	COIL	100 UH
L1001	BZ310009	021LA62R2K	COIL	2.2 UH
L4001	BZ310041	02167F101J	COIL	100 UH
L4002	BZ310041	02167F101J	COIL	100 UH
L4003	BZ310001	021673101J	COIL	100 UH
L4004	BZ310024	0326230038	COIL,TRAP	2623003
L4005	BZ310040	02167F470J	COIL	47 UH
L4007	BZ310042	021LA6101K	COIL	100 UH
L4008	BZ310041	02167F101J	COIL	100 UH
L4009	BZ310001	021673101J	COIL	100 UH
L4010	BZ310041	02167F101J	COIL	100 UH
L4205	BZ310002	021673101K	COIL	100 UH
T401	BZ310080	03305Y0018	TRANS,HORIZONTAL DRIVE	305Y001
⚠ T501	BZ310102	0481290574	TRANSFORMER,SWITCHING	81290574
⚠ T502	BZ310103	0481290614	TRANSFORMER,SWITCHING	81290614
T4001	BZ310023	031626007S	COIL,BIAS OSC	1626007

JACKS

Location No.	TSB P/N	Reference NO.	DESCRIPTION	
⚠ J351	BZ614002	060G131014	RCA JACK	HTJ-035-28A
⚠ J503	BZ614145	0602602006	JACK DC	HEC0824-010010
J701	BZ614172	060Q401075	RCA JACK	AV2-24D-5
⚠ J801	BZ614004	066X120014	SOCKET,CATHODE RAY TUBE	HPS3200-010501
J4201	BZ614167	060Q401050	RCA JACK	AV2-20D-2
J4202	BZ614167	060Q401050	RCA JACK	AV2-20D-2

SWITCHES

Location No.	TSB P/N	Reference NO.	DESCRIPTION	
SW1001	BZ612002	0508221001	SWITCH (LEAF)	SPVF130100
SW1002	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1003	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1004	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1005	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1006	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1007	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1008	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1009	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1010	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1011	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010
SW1012	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010

VARIABLE RESISTORS

Location No.	TSB P/N	Reference NO.	DESCRIPTION	
VR501	BZ210128	V1163H3BTC	VOLUME,SEMI FIXED	EVNCYAA03BE3
VR502	BZ210068	V1163Q3BTC	VOLUME,SEMI FIXED	EVNCYAA03BQ3

P.C.BOARD ASSEMBLIES

Location No.	TSB P/N	Reference NO.	DESCRIPTION	
PCB010	BZ610135	A545E1P01A	PCB ASS'Y	VMX192C
PCB030	BZ610136	A545E1P03A	PCB ASS'Y	TE9A16A
PCB070	BZ610133	A545E1P07A	PCB ASS'Y	TMX467A
PCB110	BZ610134	A545E1P11A	PCB ASS'Y	TCX326A
PCB550	BZ610139	A545C9P550	SEE CHASSIS REPLACEMENT PARTS LIST	

MISCELLANEOUS

Location No.	TSB P/N	Reference NO.	DESCRIPTION	
B301	BZ310016	024AT03655	CORE,BEADS	BL01RN1-A63T6
B501	BZ310045	024AT03481	CORE,BEADS	BL02RN1-R62T2
B502	BZ310016	024AT03655	CORE,BEADS	BL01RN1-A63T6
B503	BZ310045	024AT03481	CORE,BEADS	BL02RN1-R62T2
B504	BZ310015	024AT03482	CORE,BEADS	BL02RN2-R62T4
B505	BZ310016	024AT03655	CORE,BEADS	BL01RN1-A63T6
B507	BZ310016	024AT03655	CORE,BEADS	BL01RN1-A63T6

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference NO.	DESCRIPTION	
			MISCELLANEOUS	
B601	BZ310045	024AT03481	CORE,BEADS	BL02RN1-R62T2
B602	BZ310045	024AT03481	CORE,BEADS	BL02RN1-R62T2
BL001	BZ310014	023C00022A	COIL BALUN	HPN-01
CD302	BZ614096	06CH12426A	CORD,CONNECTOR	CH12426A
CD351	BZ614173	06CH274101	CORD,CONNECTOR	CH274101
CD352	BZ614097	06CH25088A	CORD,CONNECTOR	CH25088A
⚠ CD501	BZ614053	120R614909	CORD,AC	0R614909
CD503	BZ614133	069X620040	CONNECTOR	JM-2BK-61
⚠ CD504	BZ614196	121B164101	CORD,CAR BATTERY	SI-PC107-67
CD601	BZ614174	06CH01010A	CORD,CONNECTOR	CH01010A
CD801	BZ614175	06CU82039A	CORD,CONNECTOR	SM1098-009-1A
CD803	BZ614151	122E042705	CORD,JUMPER	2E042705
CD810	BZ614152	06CH28113A	CORD,CONNECTOR	CH28113A
CD850	BZ614024	06CH25080A	CORD,CONNECTOR	CH25080A
CF601	BZ613014	1022T45R72	FILTER,SAW	SAF45MFY220ZR
CF603	BZ613015	1011T4R504	FILTER,CERAMIC	EFCT4R5YS5A
CF604	BZ613016	1011T4R517	FILTER,CERAMIC	EFCT4R5MW5
CP351	BZ614019	069X120249	CONNECTOR PCB SIDE	B2B-EH-A
CP352	BZ614013	069E250129	CONNECTOR PCB SIDE	8283_0512_00_000
⚠ CP401	BZ614020	069X450029	CONNECTOR PCB SIDE	B05B-DVS
CP402	BZ614016	069W01001A	CONNECTOR PCB SIDE	003P-2100
CP403	BZ614018	069W420029	CONNECTOR PCB SIDE	TV-50P-02-A1
⚠ CP501	BZ614176	069S320419	CONNECTOR PCB SIDE	A3963WV2-3PD
⚠ CP502	BZ614105	069E280129	CONNECTOR PCB SIDE	8283_0812_00_000
CP503	BZ614137	069X620030	CONNECTOR PCB SIDE	RE-H022TD-1130
CP601	BZ614168	06CH2B026A	CORD,CONNECTOR	CH2B026A
CP602	BZ614039	069E270129	CONNECTOR PCB SIDE	8283_0712_00_000
CP801	BZ614017	069W320018	CONNECTOR PCB SIDE	TS-80P-02-V1
CP807	BZ614155	069W010020	CONNECTOR PCB SIDE	005P-1100
CP820	BZ614048	069E2B0129	CONNECTOR PCB SIDE	8283_1112_00_000
CP850	BZ614013	069E250129	CONNECTOR PCB SIDE	8283_0512_00_000
CP1001	BZ614156	069R220021	CONNECTOR PCB SIDE	52287-0211
CP1004	BZ614010	0697280590	CONNECTOR PCB SIDE	TMC-J08P-B1
CP1005	BZ614049	069J750029	CONNECTOR PCB SIDE	IMSA-9604S-05Z14
CP1006	BZ614014	069J740029	CONNECTOR PCB SIDE	IMSA-9604S-04Z14
CP4001	BZ614054	0697240600	CONNECTOR PCB SIDE	TOC-C04X-B1
CP4002	BZ614050	069J760029	CONNECTOR PCB SIDE	IMSA-9604S-06Z14
CP4003	BZ614009	0697120320	CONNECTOR PCB SIDE	TMC-T02X-E1
CP4202	BZ614039	069E270129	CONNECTOR PCB SIDE	8283_0712_00_000
CP803A	BZ614157	067R104019	WIRE HOLDER	51052-0400
CP803B	BZ614157	067R104019	WIRE HOLDER	51052-0400
CUS011	BZ710279	800WFAA006	CUSHION A	
CUS012	BZ710148	800WFAA007	CUSHION B	
CUS013	BZ710149	800WFAA008	CUSHION C	
EL001	BZ614043	124116281A	EYE LET	XRY16X28BD
EL002	BZ614044	124120301A	EYE LET	XRY20X30BD
⚠ F501	BZ614177	081PC05004	FUSE	51MS050LCC
⚠ FB401	BZ614111	043213012R	TRANSFORMER,FLYBACK	3213012R
FH501	BZ614005	06710T0006	HOLDER,FUSE	EYF-52BC
FH502	BZ614005	06710T0006	HOLDER,FUSE	EYF-52BC
⚠ ICP502	BZ614169	083PC10002	MICRO FUSE	251010
OS1001	BZ614031	0779014002	REMOTE RECEIVER	GP1U281Q
⚠ RY503	BZ612004	0560Q10201	RELAY	SDT-S-109LMR
⚠ SP301	BZ614029	070C533008	SPEAKER	810-47-171
TM101	BZ614160	076N0DQ020	TRANSMITTER	VC-K9B
⚠ TU601	BZ610125	0145K00055	TUNER,VHF-UHF	TECC1040PG32D
⚠ V801	BZ614178	098R140498	CRT W/DY	A34JFQ90X31(VW)
X602	BZ613004	100CT3R505	CRYSTAL	HC-49/C
X1001	BZ613002	100CT01207	CRYSTAL	HC-49/U-S
X1002	BZ613006	100DA32R01	CRYSTAL	DT-26
X4001	BZ613008	100CF3R512	CRYSTAL	HC-49/U

RESISTOR

RC.................. CARBON RESISTOR

CAPACITORS

CC.................. CERAMIC CAPACITOR
CE.................. ALUMI ELECTROLYTIC CAPACITOR
CP.................. POLYESTER CAPACITOR
CPP................. POLYPROPYLENE CAPACITOR
CPL................. PLASTIC CAPACITOR
CMP...................... METAL POLYESTER CAPACITOR
CMPL............... METAL PLASTIC CAPACITOR
CMPP............... METAL POLYPROPYLENE CAPACITOR

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